

APPROVAL SHEET I

This Design Exploration Seminar I titled 'Move Mumbai: Kaali Peeli and Beyond.' by Angshuman Das is approved in partial fulfillment of the requirements for Master of Design Degree in Mobility & Vehicle Design, IIT Bombay.

Project Guide:

A handwritten signature in blue ink, consisting of a stylized 'A' followed by a long horizontal stroke.

Move Mumbai

Kali Peeli and Beyond



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Introduction

“Move Mumbai” is an incredulous yet everyday traffic stories from the streets of Mumbai captured through a series of photographs. We closely observe how Mumbaikars use their vehicles, and live with and around them. These vehicles technically are nothing more than machines that were meant to be utilized for transporting people or cargo from place to place. However, these machines become a part of people's lifestyles, intertwined into their ways of living. At its core, mobility is about people and their needs. This human dimension of mobility is captured through our visual essay. Humans adapt to what is around them in their environment, they tend to make the best out of every opportunity and in the process develop unique traits and habits. People tend to ease their everyday lives utilizing every resource at their disposal. These adaptations to the circumstances presents interesting sights around Mumbai where the street environment is filled with vehicles of all kinds.

From cab drivers to bus passengers, from goods carriers to bikers, to children, and pedestrians, Mumbaikars encounter hundreds of vehicles daily while commuting between any two places whether they may or may not be in one themselves. The way people move through their environment is shaped by a wide variety of personal preferences, physical abilities, cultural norms, and socioeconomic status. It could be a matter of necessity for some or a source of leisure for others. It is this diverse human experience that makes every human-vehicle interaction unique.

Vehicles and most mobility options out in the streets are mass-manufactured products and are designed considering the general population, primarily focusing on safety and utility. Manufacturers have a specific intention in mind when designing transportation systems, infrastructure, and policies. In actuality, appropriation rules. The common sight in Mumbai is due to the extended utility of these mobility systems beyond their intended usage. Every Mumbaikar can recall multiple instances of seeing two-wheelers being used as family vehicles. A vehicle is designed to carry two people. Mumbaikars still manage to fit multiple, especially younger children, in ways that a designer would typically not envision. This reflects in certain ways the economic constraints faced by many Indian families, the cultural value placed on integrated family living, and their resourcefulness. This is one of the many ways in which the city dwellers have appropriated vehicles.

To the eyes of a Mumbaikar, these instances are so recurrent that they seem ordinary and become a way of life for most. Understanding the appropriation of vehicles in the various different manners reflects the unique cultural, social, and economic conditions of the residents of the city of dreams. For designers, it becomes crucial to understand that these humans and the overarching traffic system should be the center of their creations to address the discrepancy between the designed intention and the actual use of it. This means taking into account the needs, preferences, and behaviors of actual users when designing transportation systems and infrastructure. We hope that the readers relook at these everyday images with a new pair of eyes to understand the seemingly mundane yet incredulous images of the mobility of Mumbaikars.



Mumbai Traffic

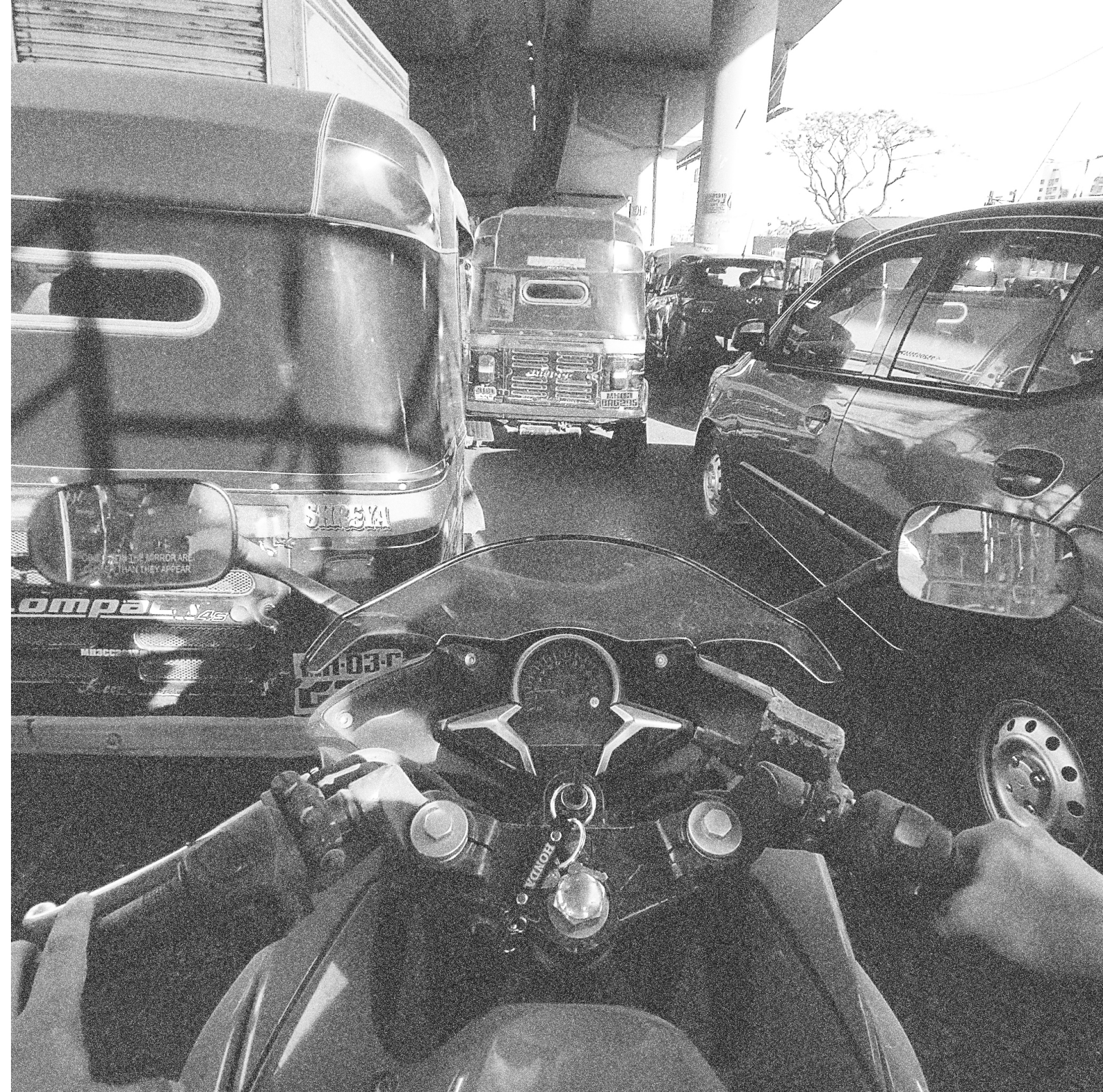
Mumbai traffic is famously chaotic, with millions of vehicles jostling for space on the city's crowded streets. From rickshaws to buses, and cars to motorcycles, Mumbai's traffic is a reflection of the city's vibrant and dynamic culture.

Despite the chaos, there is a certain rhythm to Mumbai traffic, with vehicles weaving in and out of traffic, honking horns, and moving in unison like a well-choreographed dance. This rhythm is a reflection of the city's energy and vitality, with people and vehicles moving together in a seemingly chaotic but ultimately cohesive way.

The stream of vehicles never really stops. Transportation load peaks during the morning and the evening hours when a large number of people are commuting to or from schools and workplaces. Congestion on the streets is a common experience and the drivers and riders of Mumbai have developed a particular manner of managing to drive about through this regularly passing each other while maintaining a gap of millimeters. This congestion has significant social, economic, and environmental impacts, from lost productivity to increased air pollution. The vehicles continue to ply even hours past midnight until dawn essentially making it an infinite loop of traffic.

Mumbai's traffic consists of a wide range of transport modes including but not limited to personal cars, two-wheelers, public buses, local trains, auto rickshaws, cargo vans, trucks, special purpose vehicles, hand carts, and taxis. Based on the locality, the ratio of these coexisting vehicles change. In general, the traffic is a mix of all these vehicles, with personal vehicles and auto rickshaws peaking during office hours; heavy trucks increasing post-midnight and auto rickshaws diminishing; while taxis are accessible at all hours. In certain areas such as, the South Bombay, luxury cars are more prevalent whereas in areas such as Dadar, transport vehicles are very common. In areas beyond Sion, auto rickshaws are not permitted in the lower part of the city. Thus only BEST buses and kali peeli taxis (cabs known for their recognizable black- yellow color) operate.

Despite these variegated challenges, Mumbai's traffic continues to be a defining characteristic of the city. Whether one is a pedestrian navigating the bustling streets or a driver negotiating the chaotic traffic, Mumbai traffic is an experience that is both challenging and exhilarating, and one that is central to the city's identity.



Driver Bhaiyaa

The most prevalent presence on the streets of Mumbai is that of the signature Kali Peeli commercial taxis and auto rickshaws. Driver Bhaiyaa is how people call auto rickshaws and taxis, where bhaiyaa refers to brother in Hindi. Auto-rickshaws are very interesting vehicles and so are their drivers. They have three wheels and are easily manoeuvrable. As a result, they move around in ways that are not possible with four-wheeled vehicles. This brings about a chaos on the road because these vehicles try to cut-corners in ways that are detrimental to normal flow of traffic. What make them interesting though are the drivers who manoeuvre these around the packed roadways with just millimetres to spare while simultaneously engaging in some other non-driving activities as well.



**Because it becomes thier home, we
are all just guest in thier homes**

Ghartkopar, Afternoon.

This is a typical sight you would see in the streets of Mumbai, here we can see the driver of the auto rickshaw barefooted and sitting with folded legs. Since the drivers drive around for a prolonged time they often sit in the most comfortable position they can find. Often times, they spend so much time inside the vehicle that the vehicle becomes their second

home. It can also be seen that the drivers spend much of their time stuck in traffic, hence they adopt such postures. For an outsider it might look unsafe but, unlike regular vehicle auto rickshaws have all their controls like gear, clutch, accelerator and brake controlled from the steering itself and only requires one leg for the brake pedal. The design of the

vehicle allows such postures to be adopted, even though they were not originally intended by the designers themselves.



**Road side brawl? Raod mishap?
There is always an audience**

Dadar, Afternoon

This image was taken in the Eastern Express Highway (EEH), this highway connects Thane and South Mumbai. Since this highway drives around residential area we can see acoustic barriers placed in parts of the highway, also there is a huge number of flyover to bypass the crowded roads of Mumbai. In the city driving road brawls and fender bender are a common occurrence. Similarly here we can see a road brawl between a Taxi

driver and 2 wheeler rider caused by a fender bender. In this brawl the driver had to get out of the vehicle to access the damage. This brawl attracts an audience who stop in front to see what is happening. Though it was a small and a short discussion between the drivers, but this also caused a long chain of traffic in the highway. This is a common occurrence in India



CNG for his car and paan for him

Dadar, Afternoon

Paan and other tobacco products have a huge role in many Indian drivers lives. Here we can see the driver preparing a paan for himself while driving, if has become also like a ritual where the drivers have to have a paan before or while driving, a fuel for his driving force. This also is the reason to the various red urban street art graffiti done along the road dividers, and also sometimes their own vehicles



Living in the real world or the reel world?

Powai, Morning

This image was taken in Powai, in this image we can see the auto driver approaching a traffic jam, but the interesting part is that in that process of driving, the driver is also watching reels in his phone. We are indeed living in the era where reels have such a huge impact in our real life. We can see that many drivers use their phones for various propose while driving. Especially a rickshaw driver would

use it for navigation purpose, using of their ride sharing apps for potential customers. The vehicles never came with an infotainment system from the OEM therefore, drivers used their phones as personal infotainment systems of their vehicles.



Street Sense

The streets of Mumbai see the most diverse range of humans and transports on itWW. From the luxury import cars to hand carts, from paws and hooves to the most expensive stilettos. With this comes the interesting dynamic interactions between these unique elements of the Mumbai streets.



Commute and the city

Mumbai Central, Evening

This image is one from a street near MMCT where a diverse range of transportation is seen on both sides of the two-lane road. The background captures the contrast between the older buildings of Mumbai and the new skyscrapers. The scene is from beyond a traffic signal where the lights are green. There are numerous private cars and scooters on either side of the road amidst taxis. Eight of the cars have retrofitted roof racks

on them. The key focus is on the bullock cart that is stationed on the road blocking one lane partially. The handler is walking towards the cart from behind it, through the road, not using the footpath just beside it. The bullock is unbothered by the traffic whereas the cars are blending into a single file to cross the animal. A person is sitting on his parked scooter beside the road looking at the large animal in the middle of the road in front of him.

Mumbai traffic displays a variegated set of vehicles that goes above and beyond the conventional. The streets are not simply for vehicles; rather they are a conduct for a motive force - human, animal, and the inanimate.



**As long as they don't see you can
carry anything**

Byculla, Evening

The image is one from an intersection near Byculla where a traffic police officer is standing at the center of the junction on the road, facing towards the currently moving traffic. Behind him are a number of scooterists in a staggered manner waiting to move as soon as the officer directs them to. The scooters are way past the zebra crossing and the first scooter is just a step behind the officer. This scooter has two

persons sitting on it, with the rider nestling a block of timber between his thighs while one end rests on the footboard of the scooter. He has kept one leg up on the stationary scooter to keep the block in place. The person in the back is holding a sheet of plywood and sitting with a completely twisted torso to be able to hold the large sheet. This person is bare feet and rests one edge of the board on one foot. The scooter behind this is being

ridden by a food delivery person from Zomato with his delivery bag lodged between his feet on the footboards. The riders are intently looking at the road ahead. The other lane has a merging lane to it which is full of Kali Peeli taxis. Two wheelers become the mode of transportation for goods and many more things beyond people.



Asset management and resource optimization

Fort, Afternoon.

The image is one from a street near the Kala Ghoda where an excavator is the central object of focus. The excavator is parked in the middle of the street where other cars and scooters are parked on either side of the road essentially preventing any other vehicles from entering. A vehicle is seen reversing out of the street after failing to take this route. Two men are loading sacks of gunny onto the front loader of the

earthmover manually since the excavator cannot utilize its tool on the concrete streets. The sacks appear to be heavy from the two men's postures. An operator is sitting in the cabin of the vehicle, not engaging in any other activities. Only one of the two floodlights of the vehicle is switched on and even the main headlamps are off. The street is well-lit by yellow streetlamps. Excavators double up as vehicles

for transportation of heavy goods. Thus, the function of carrying goods, even though not originally envisioned is possible by the vehicles.



**2 wheeler? 4 wheeler? Humans?
Animals? You can find everything in
the Mumbai Traffic**

Byculla, Evening

This image captures an interesting where multiple lanes of traffic join. In this junction, the traffic signal has just turned red for one of the lanes. Two motorists have stopped in the middle of the road to comply with the signal. Pedestrians have immediately started to cross the lane behind the two-wheelers not waiting for the oncoming traffic in the adjacent lane on which a taxi and a bike are seen to be approaching. The most fascinating

elements are the two horses that are walking along with their handlers amidst the city traffic, crossing the road on the zebra crossing. Cargo trucks are seen on two different lanes one waiting for the light and the other continuing its path, into which a loaded hard cart is slowly rolling. Multiple human beings are crossing each of the lanes at their own pace not using the zebra crossing. The rhythm of human movement is trying to win

against the motorized vehicles in this short span of the change in traffic signals.



Technically 'walking' on the footpath

Byculla, Evening

This image captures a street near MMCT where a signal has been red for some time. Multiple two-wheelers, a tempo and a taxi are seen waiting for the signal to turn green. All the riders are wearing helmets but the pillions are not. A powerful bike is waiting to merge into the traffic with the front wheel on the road, and the rear wheel over the footpath. There is a male and a female on the bike who are engaged in a conversation

unbothered about the breach of traffic rules. This bike has traveled over the footpath to bypass the queue of vehicles and join in directly at the front. None of the people in the signal are protesting against the two on this bike. The people are well-dressed and the rider is wearing a reflective bucket helmet. The theory of traffic spills over on the footpath.



Pudhe Chala

To be called the best in something is to be at the pinnacle of the field, it is therefore likely that the BEST (Brihanmumbai Electric Supply and Transport) Buses of Mumbai too are best at something. BEST buses ply all throughout the great city connecting every nook and corner. Along with the Mumbai local trains, they serve the best connection. These buses are always packed to the fullest. When people enter in these crowded buses they shout out the Marathi phrase “Pudhe Chala” which means “Move along” to give space to the incoming passengers. From the way they are always packed in, it is probably the best alternative to experience the congestion and breeziness of a Mumbai local train up close and personal with strangers.



The duality

Madanpura, Dusk

This image shows a section of a BEST bus with air conditioning. The bus is completely filled with passengers. All the seats are filled and a huge crowd is standing in the middle between the two rows of seating. Men and women are grabbing onto the overhead handles as the bus prepares to leave from the bus stop. In the foreground is a local taxi driving by in the opposite direction. Seated

in the taxi is one single passenger with all the windows rolled down. The image shows the contrast between two public vehicles. The bus which is air conditioned yet overflowing and the taxi that is air cooled with the shades rolled down with a single passenger.



The hero of Bollywood

Worli, Dusk

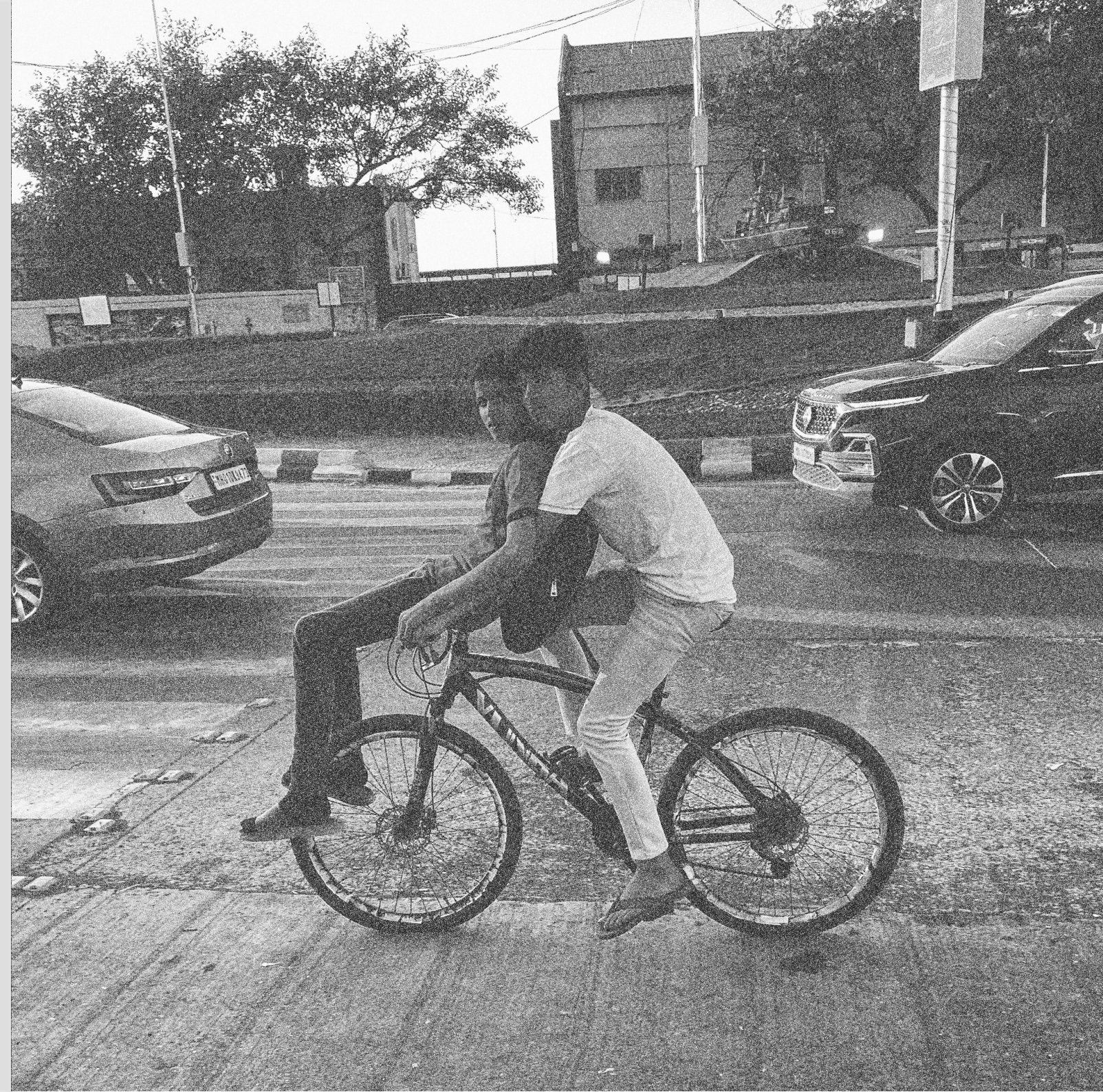
This image shows a bus running beside the seaside road in Worli. The bus is filled with passengers with everyone seated in it. The passenger section windows are covered with metal bars. There are two passengers seated in the driver's cabin. A water bucket is visible from a small window on the side of the bus towards the front. There is a bus conductor sitting on the seat near the door leaning onto the grab handle. There is

one swash buckling young man standing at the door on the first of the four steps leading to the bus. He is holding onto the door preparing to get off the bus when it stops. The traffic, the hectic life and the challenge of reaching everyplace, creates the daring everyday heroes of Mumbai.



Kids & Wheels

The vehicles on the road are not really designed for children. They are made considering adults and thus lack adequate provisions of safety for them. This is seen evidently in the designs of the seat dimensions, seatbelt arrangement, foot rest placement, and vehicle ergonomics in general. Involvement of children thus brings a new perspective and way of living with vehicles. There is a sense of fun and curiosity but also caution regarding safety involved.



As long as the van is yellow its safe

Worli, Afternoon

This image is that of a school van that is leaving with students in it. In Bollywood movies, these vans are infamous for being the favourite choice for kidnappers. But here the colours indicate that it is a school van and the lettering discloses the name of the school. The vehicle is retrofitted with a roof rack where one student bag is being carried along with a spare wheel. The rear side windows are grilled to prevent young children

from falling or jumping out of the vehicle. The front side windows are not barred and a child is sitting in the passenger seat with his bag behind him on the seat. The rear of the vehicle is packed and evident from the silhouettes, and the two arms holding onto the grill. A child is sitting on a woman's lap to fit in one more passenger. While the public vehicles allow for heroes, Mumbaikars prefer their school vans to be safely retrofitted.



**Where there is a wheel there
is a way**

Worli, Afternoon

This image captures a unique manner of ride-sharing on a bicycle. Two teenagers are on a bicycle where one is pedalling it and the other is sitting on the handlebar in the front. The posture of the rider is forward-leaning due to the seat height and handlebar arrangement. The passenger in the front is leaning back on the rider and holding onto the bar on which he is seated in. They are turning on a roundabout street

where there are multiple cars. The ones on the cycle are towards the side of the road out of the main lanes. The bike has multiple gears and is aiding them to keep up with the traffic. This is also an everyday sight in Mumbai and not simply street acrobatics.



The all new Kid roof

Pravbhadevi, Miday

In India, the sunroof has gained popularity in every vehicle segment. An urban SUV is travelling down a road around Bandra being driven by a man. There is sunlight directly falling on the car from the front illuminating the interiors of the vehicle. The driver is wearing sunglasses. There is a child who is standing out of the car partially through the sunroof. He is leaning on the front edge of the cut-out with one arm holding the edge

and the other outstretched in front of his face to block the bright sun.



Its safe as long as you hold them tight

Nalanda Nagar, Morning

This image is from the Eastern expressway that shows a family travelling through the highway on a motorcycle. The vehicle is a commuter bike which is carrying four people. It was never designed to carry more than two. The adult male, apparently the father, is riding the bike, wearing a helmet and the mother is sitting at the rear end on the seat. There is a young child sitting between the two nestled between her mother's thighs and

her father's back. Her feet are dangling in the air with no place to rest them. The fourth passenger is an infant being carried by the mother in her arms. The infant is perpendicular to the direction of travel and their feet are visible on the mother's lap. The mother is holding onto the infant and not to anything else for her own support. The bike is travelling on the outer lane of the expressway at a slower pace.



The tank rider

Byculla, Evening

This is an image showing a family of three travelling on a motorbike with some luggage as well. The adult male, a healthy-built man is riding the bike and is wearing a helmet. A woman is in the back seat in a burkha managing the layers of clothing through the wind. A child is sitting on the tank of the bike resting on her father's belly. The child is holding on to the tank side to stabilise themselves while being held by her father's legs and

arms on either side. She is wearing a bandana on her head. There are two large shopping bags hanging on the handlebar of the bike gripped by the father's hand operating the clutch



The school bike

Worli, Afternoon

This is an image of a family returning from school on a motorcycle. There are four people on the bike and none of them is wearing a helmet. The passenger in the front is a boy in his school uniform. He is leaning towards the front and his legs are stretched backwards under his father's legs on the brakes and gear shift. He is holding his water bottle in his hand between his father's arms steering the bike. The father sits in front

of his daughter who is also in her school uniform. Her feet are barely supported on the footrest and she has no wiggle room being packed between her parents. Her head is turned to the side to enable breathing. The mother is holding her husband on the shoulder with one hand. One school bag is hanging on the clutch side handle grip while the other is hanging on one shoulder of the mother.



Car Go

One is only limited by their imagination and determination. Faith can move mountains and Mumbaikars can move anything on any mode of transport. The kind of cargo to be carried, to what distance, safety and on what vehicle are irrelevant if a person is confident enough.



**Even if it doesn't fit inside it fits
on top**

Byculla, Evening

This image shows an MPV (Multi-Purpose Vehicle) taxi common in the streets of Mumbai. This taxi can take 6 passengers but in this case, has no one sitting in it. Although without passengers this vehicle is carrying timber logs on the carrier that is retrofitted onto its roof. The size of the logs is greater than the roof and extends way behind the vehicle. These logs are tied over

the carrier with ropes. There are no safety signages put up on the extended pieces of cargo. The vehicle has multiple dents on its surface. Vehicles and their uses while pushing the boundaries of safety is a common theme that reoccurs on a daily basis.



**Space was never an issue, and
safety never a concern**

Ghatkopar, Afternoon

This image shows a light goods carrier parked perpendicular to the road. The vehicle is carrying bamboo pieces of various lengths on the bed. These pieces are jutting out way behind the carriage space. Some bamboos have slant cuts leaving sharp ends poking out and no hazard signage. The carriage is covered with tarpaulin sheets tied onto the sides of the

bodywork. The vehicle has two registration plates at the back. The crash guard is bent on both ends. The vehicle is parked at the edge of the pavement.



Narrow beams on narrow wheels through narrow streets

Byculla, Evening

This image captures a cyclist accompanying his bicycle on foot on a busy street. The road is a one-way street with two-wheelers parked on one side. The cyclist is carrying a large number of metal beams tied to the cycle. He has put a brick on the rear carriage and tied it, onto which the stack of beams is placed. This stack is first tied to each other and then

tied collectively to the cycle at the carriage. The front ends of these beams are rested on the handlebar. These bars are much longer than the cycle's footprint and extend beyond it on both sides.



Zor lagake haishyaa

Mumbai Central, Afternoon

This image shows a hand cart loaded with cargo being pulled on a city street. The hand cart is carrying twelve boxes wrapped in plastic covers. The cargo is tied securely to the cart. There are three people pushing the cart from the back, and one person pulling from the front. The cart is jumping a red light along with a scooter and a taxi. There is one

person stuck mid-way on the zebra crossing between these vehicles jumping the red light. "Zor lagake haishyaa" is a call for action in Hindi



Dum laga kay haishyaa

Mumbai Central, Afternoon

A scrap dealer pulls a hand cart through the streets. The person is pulling the cart from the front and there are no other vehicles on his side of the road, unlike the opposite side where there is a mix of buses, police vans, cars and taxis lined up. The cart is loaded with two metal trunks, newspapers, plastic pipes, a sack, electronic equipment, paper bags

and an upside-down chair. There is a rag hanging by the handle of the trunk in the front. All the cargo is tied with plastic and coir ropes. “Dum lagake haishyaa” is also a call for action in Hindi. It often follows “zor lagake haishya”.



Bas abhi thak gaya

Byculla, Evening

This image shows a service road next to a flyover. There is a handcart being pulled by one person, loaded with rolls of cargo wrapped in plastic. The cargo is loosely tied with one rope. There is one person sitting on the cargo and another with his arm on it as he walks by the cart. Manual labour still holds precedence in a megapolis such as Mumbai. Labour

is also cheap. The road is one-way and a motorcyclist is coming from the opposite direction making its way through a gap between the cart and a makeshift barricade on the lane. There are pedestrians walking beside the road. On the other lane under the flyover are a number of sacks stacked over each other. The walls of the flyover are painted with various

artworks. “Bas abhi thak gaya” is a phrase which means “Enough, now I am tired.”



They were all in it together

Byculla, Evening

This image captures a narrow street in Mumbai with numerous two-wheelers parked in front of the shops beside the street. There are men sitting on their parked scooters while pedestrians walk by over the footpath and the road. There is a bike with two people on it, carrying pieces of logs with them. The person at the back is holding a stack of logs with both arms and

has rested the ends of them on the seat between his thighs. The logs are tied together and of unequal length. The bike has a pannier attached at the back and the rear cowl of the vehicle is broken.



It runs on LPG? LPG runs on it

Mumbai Central, Dusk

This image shows a person carrying LPG cylinders on a reverse trike. Delivery boys delivering cylinders to multiple households are a common sight in Mumbai. This person is carrying eight cylinders loaded on a custom-made carriage in a reverse trike configuration. The grab handles of the cylinders are leaning forward. The carriage trike has two smaller

wheels at the front and one bicycle wheel at the back. The person pedalling this vehicle is wearing a blue uniform. There is a cab driving ahead of the trike and another car parked beside the road.



Parking

With the involvement of a vehicle there is an immediate requirement of a parking space for it. Mumbaiers with their high rise buildings, dense traffic and rising numbers of vehicles have still figured out interesting ways to accommodate their vehicles



The aerial parking

Prabhadevi, Afternoon

This image captures a scene from under an apartment in Prabhadevi. Two cars are parked in two different parking spaces which presents a contrast. One car is parked in this parking space facing the entrance to the apartment. The other parking space is under the apartment on the ground floor where a luxury SUV is parked. The vehicle's rear overhang is way

beyond the limits of the parking space and thus is floating over the entrance driveway. Despite the limitations, the limited space presents an avenue for parking.



Order in chaos

Mumbai Central, Afternoon

This image captures a parking space beside the main road. There is a white line on the road demarcating the parking space on the roadside. There are numerous two-wheelers parked in two rows. *There is no order in the direction of parking but all the vehicles are within the limits.* There are cargo vans and trucks parked much ahead within this lane. There

are people walking on either side of this parking space along the direction of traffic.



Snug under the sheets

Colaba, Night

This image captures open-air parking in the southern part of the city. There are several cars parked parallelly one behind the other beside the street. The street is lit by yellow streetlamps. All the vehicles are covered with automotive covers. Some sheets are cleaner than others. The compound behind the vehicles has high fencing and barbed wires.

Opaque panels obstruct the view of the property.



The foot Pa(th/rking)

Colaba, Night

This image captures a series of cars parked perpendicular to the street onto the footpath. The footpath is wide and there are pedestrians walking in both directions on the same side of the road. The footpath is well-lit with white street lamps. The cars are parked side-by-side in a manner that the rear wheel touches the edge of the footpath. The rear

overhangs of the vehicles are over the footpaths depending on the length of the car.

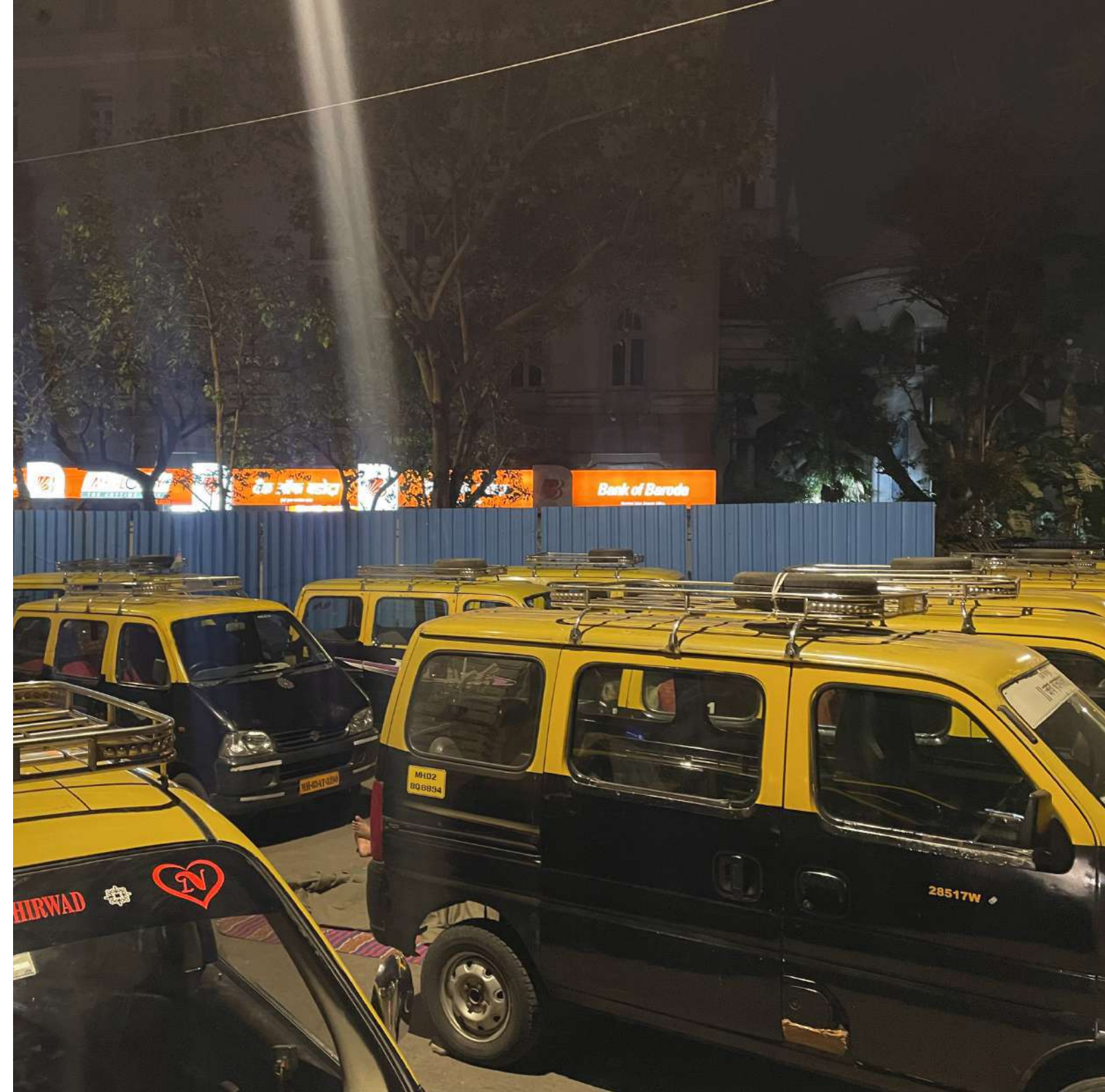


The echo of Eecos

Fort, Mid-Night

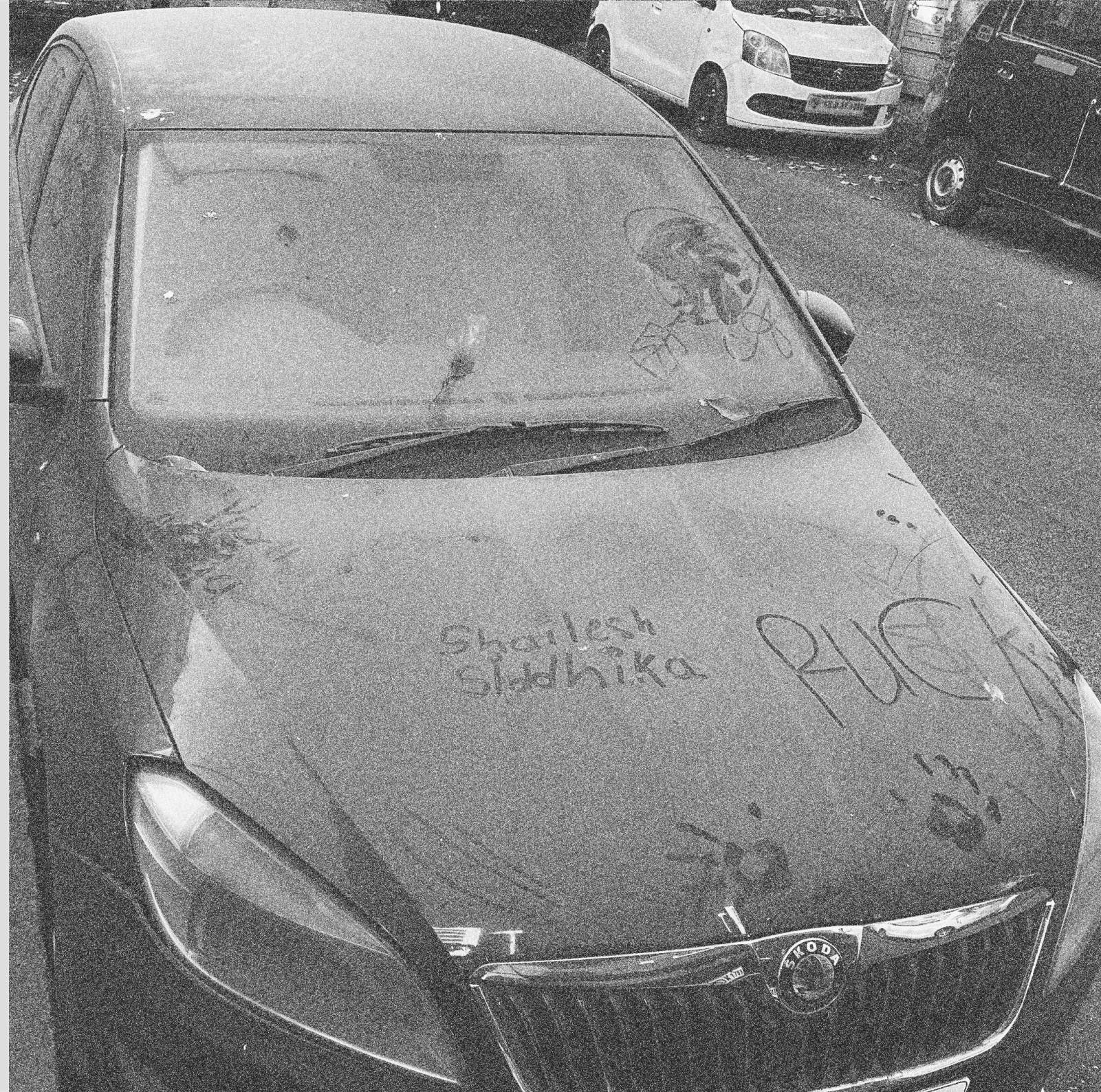
This image captures a parking lot at night near the Fort area in the southern part of Mumbai. This space is bounded on one side by blue roof sheets. This parking is for the kali peeli taxis of a particular kind. All the vehicles are of the same model of MPV (Multi-Purpose Vehicle) called the Maruti Suzuki Eeco. All these vehicles have retrofitted roof racks onto

which a spare tire is attached. The cars are parked side by side in two rows. Between the two rows on the ground, there are sheets on the ground, where a cab driver is seen sleeping with his legs visible behind one of the cars.



Street Art

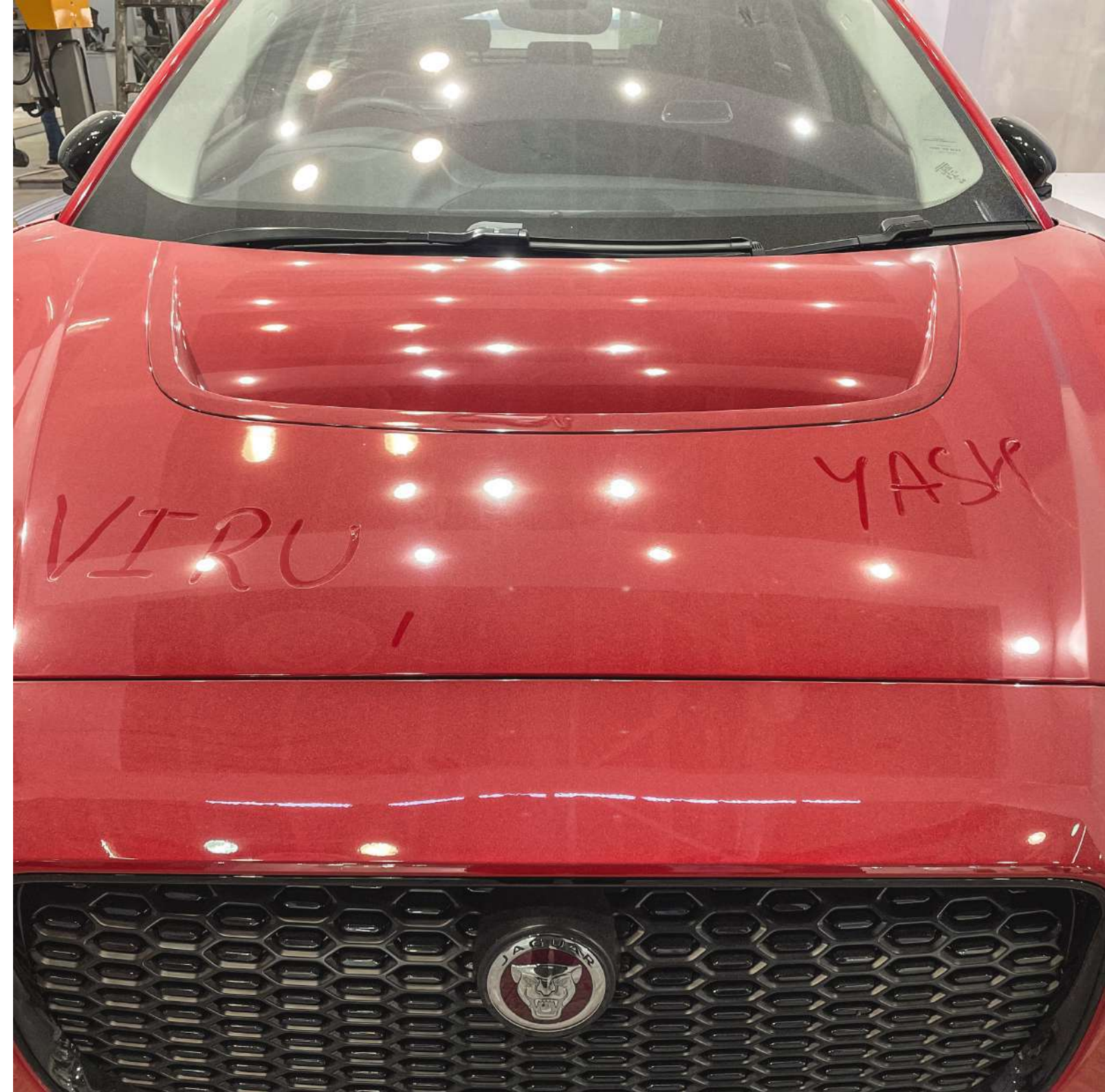
Mumbai has had a culture for Street art, expressing a diverse range of emotions and expressions in various mediums. This artform has in a manner been expressed on vehicles as well, where casual artists paint their thoughts and thoughtless doodles onto the cars. Artists make sure to leave their signatures.



Viru and Yash taming the Jaguar

Colaba, Evening

This is an image of a close-up shot of a bonnet of a luxury electric vehicle from Jaguar. The vehicle is an expensive electric car and is painted in a bright red colour. The car has gathered dust on it, possibly from being kept outside and not being used for a long time. On the dust are the names Viru and Yash written with fingers in all capitals.



The world is your canvas

Dadar, Afternoon

This image captures a street near Dadar where cars are parked on both sides of the road. The cars are parallel parked and the central frame is occupied by a premium Sedan from Skoda. The vehicle has been gathering dust for some time. On the black vehicle are various names, numbers and words such as Sailesh, Siddhika, Parth, 7 and RUCK. there are

strokes made with fingers and hand prints on the hood. Some of the older letterings on one side of the bonnet have gathered dust on themselves and people have overwritten on it. Artworks and words appear on the windshield and the windows as well.



Whitewashed

Dadar, Noon

This image is of a van that has been parked in the same spot for a very long time. The vehicle is parked beside the city is has gathered a thick layer of dust on it. On this dust is a spread of bird droppings from the tree above the spot, the entire roof and sides of the vehicle are covered with it. The van is rusty on the door sills with large gaps forming around the edges. On the

rear windshield, another vehicle is seen which appears to be clean.



Jugaad

While the world calls these Life Hacks, Jugaads or improvisations are the peak of human creativity and resource optimisation and Mumbaikars do not shy away from innovating around their vehicles. Be it a quick fix to a dent or a complete modification to improve functionality. Safety is seldom the priority.



Tailor made

Dadar, Noon

This is an image of a two-wheeler parked beside the street on a pavement. The vehicle is close to a compound wall beside a bench on the footpath. The scooter is covered with tarpaulin sheets. The front cowl is covered by one sheet which is wrapped around with a thick electrical cable. The rear seat is covered with another sheet which is folded and tucked

between the crash guards around the body panels. The sheets have gathered dust.



Minaret on wheels

Colaba, Night

This image is a close-up shot from the handle covers and cowl of a scooter. The focus is on the miniature minaret that is screwed onto the bolt that is meant to hold the rearview mirrors for the scooter. The handle grips are fitted with aftermarket rubber grips. The vehicle is parked on the side of Colaba street perpendicular to the road like the other two-wheelers.



Use upper at night

Ghatkopar, Noon

This image captures the back of a truck through the windshield of a taxi. The truck bears the artistic lettering such as Keep Distance, and Speed Limit. The vehicle bears a registration number from a different Union Territory, Delhi. The message in blue at the centre of the tailgate appears to read 'Upper at night' rather than the actual painted 'Dipper at night'.

The irony of this misreading is that the message means completely the opposite, because of the peeling paint on the letter 'D'. Inside the taxi, from where the shot was taken, the plastic covers from the rearview mirror have been partially removed with the edges still sticking in the corners. The covers on the sunshade are still intact.



The undercover

Byculla, Morning

This image is a close-up shot of the rear end of a truck. The truck has a retrofitted crash guard welded to the back of it. This guard has an art-deco pattern of a sun with straight rays emanating from it. Its paint is covered with dirt and rust. The section over the number plate has patterns made on it which obscure the plate and make the numbers illegible.



Cemented

Byculla, Morning

This image is a shot of a cement mixer shot through the windshield of a taxi. The construction vehicle's rear section is completely covered in cement residue. The hazard plate on the bumper and the registration plate is completely covered and are illegible. The outlet from the tumbler is directly over the rear left fender and tail lamp damaging both severely.

The number plate is tied onto the vehicle with a piece of barbed wire and barely hanging on the vehicle.



Our Furry Friends

The animals other than the homosapiens of Mumbai too have adopted vehicles in their way of living. When the vehicles are left unattended by the owners, these furry friends make them their resting spots - either on, in or under. They are the urban animals of Mumbai.



Puss on the hood

Colaba, Mid-Night

This is an image captured in a street in Colaba. The image is of a cat dozing off on the hood of a car that is parked on the side of the street. The cat is lying on its side with its legs spread, and eyes almost shut. There is another car parked on the other side of the road and two two-wheelers parked behind it.



Honda : The power of dreams

Powai, Evening

This is an image of a dog sleeping on the seat of a scooter. The scooter is parked perpendicular to the road and close to the pavement. The dog is laying along the length of the seat, with its head resting on its paw. The vehicle is a model from Honda and the dog is fast asleep, thus the befitting caption from Honda's tagline - 'the power of dreams'.



Cat on the gun

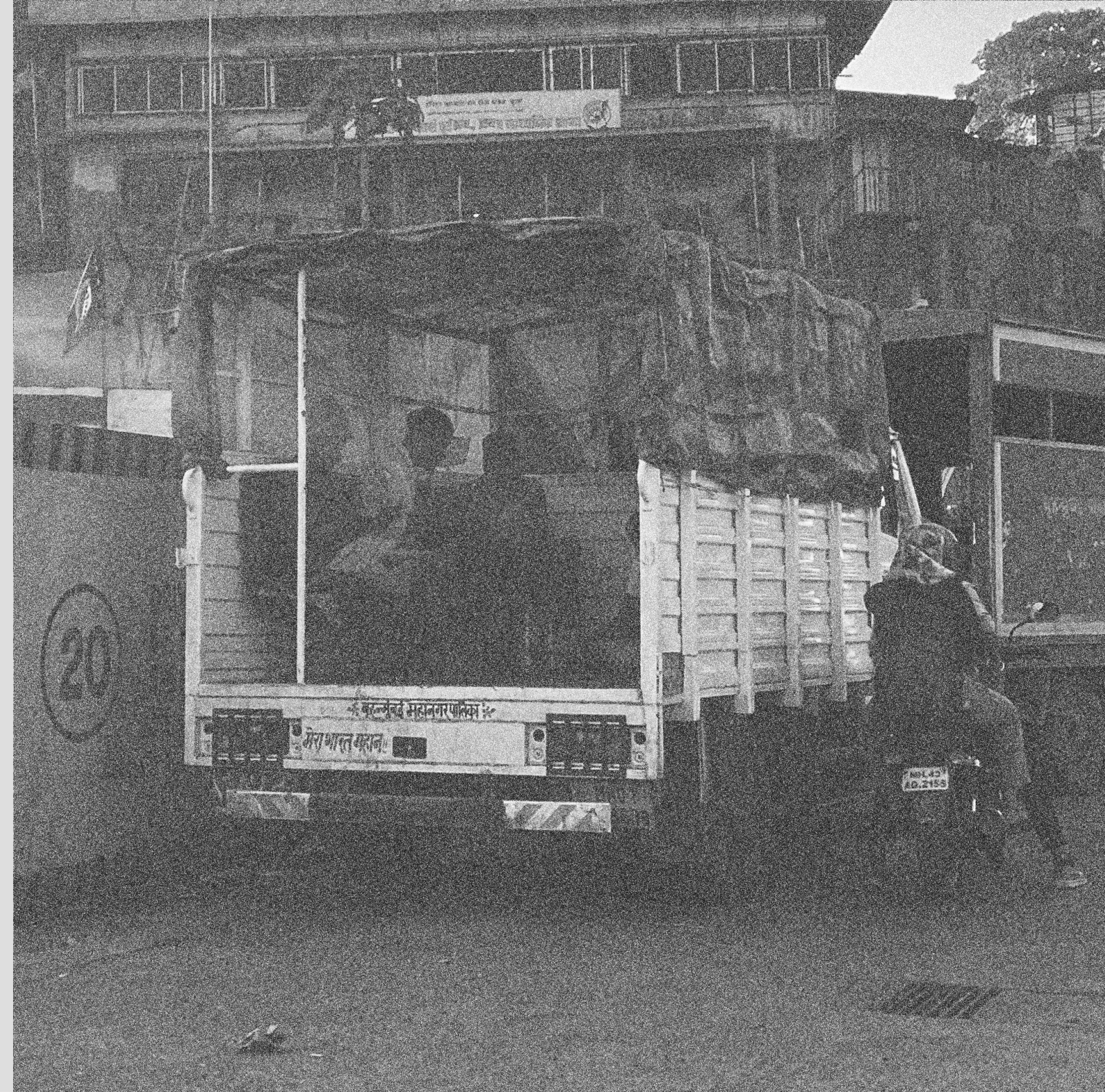
Powai, Eveining

This is an image captured in Powai market. A black Royal Enfield bike is parked beside the street where there are people moving in the market. Royal Enfield's tagline has been "Made like a gun". On the bike, there is a cat seated on the rider's seat comfortably seemingly enjoying itself. The cat is awake and observing the commotion of people ahead.



Personal Carrier

Every vehicle can be a personal transporter if one has the intent to travel, and the Mumbaiers demonstrate this in a diverse range of ways every day. Objectification of a person is inhumane but one can choose to be considered as goods and be moved around in a goods carrier.



RV the recreational vehicle

Kurla, Morning

This images shows a group men, taking rest in the bed of a truck, its was on an afternoon when this image was taken, we can see a man on his phone the other two chatting and one on the floor seated. We can also see some water bottles and some utensils on the floor. The vehicles can be seen that its customized to haul people to work. If we look around the truck,

the truck is parked behind another truck, there is a construction going on around the area.



**They say memory foam is good for
your back**

Powai, Morning

This image shows a truck bed, filled with decoration materials like carpet, vase, artificial flowers, and tarpaulin, which are safely protected by stacks of packaging Expanded Polyethylene (EPE) foam. We can also see a man that is sound asleep, perhaps on one of the foam cutouts, while being surrounded by the rest of the foam blocks. The entire bed of the vehicle can be seen secured by rope.



Mujhe bhi le jaa

Dadar, Afternoon

In this series of images we can see a man attempting to get on a moving truck, Here we can see a tata ace in a slow moving traffic. The vehicle is loaded with supplies, and also carries two men in the trunk. One casually sits on the supplies, the other stands and holds on by the door of the trunk. We can see the third person, in the first picture we can

see him moving towards truck. In the second image we can see him successfully climb aboard the truck and getting himself comfortable. "Mujhe bhi le haa" is a Hindi term for 'Take me along too.'



On Two Wheels

A huge chunk of Mumbaikars on the roads are bikers, or scooterists, splitting lanes through the dense traffic. On two wheels, one saves a lot of time in the peak hours while manouevering the dense traffic of three and four wheelers. The two-wheeled drivers are never deterred, they always manage.



**Scooter ke do upar bakse ,
scooter ke do aage bakse.
Aage bakse ,pichhe baske,
bolo kitne bakse**

Vikhroli, Noon

This image shows a man on a moped (TVS XL100), this vehicle is known for its cargo carrying capability. Here similarly we can see the man carrying a stack of goods behind him and two large bags in front. Despite the amount of goods he is carrying, he seems to be casually riding the moped without any issues. Despite the dangerous packing of the goods

he follows the safety protocol of wearing a helmet. He is riding on a flyover, and by the background we can see the scene of a typical flat housing of Mumbai. The caption has been bowdlerized from a popular Hindi song from the movie Mera naam joker, and asks the viewer to count the number of bags on the vehicle.



**X marks the location where you drop
the treasure**

Dadar, Noon

Here we can see a delivery man on a scooter, with huge bags filled with parcels to deliver, the bags kept in the foot rest area of the bike, and also we can see a small glimpse of the large blue bag that is tied on the grab handle of the scooter. He is trying to locate the destination for the delivery of the parcel with the help of his phone.



**You need no helmet or glasses while
your friend is just one call away**

Prabhadevi, Afternoon

Here in this image we can see two lightweight gearless scooters, both the scooters can be seen moving towards the direction of the sun. In the first scooter with the pillion rider we can see the driver riding with just one hand, and uses the other hand to act as a visor. Similarly, the second rider can be seen on the phone while riding with a single hand. In this instance we can see all three riders without helmet.



One legend, 2 strokes, and 3 Bhau

Prabhadevi, Afternoon

Here is a classic example of the three best friends. Here the legend refers to the bike (Yamaha RX 100) which has a two stroke engine, the 3 bhaus talks about the three friends, 'bhau' means brother in Marathi. Among the three people sharing the bike, we can see that the one in the end has his back bag on, while the one in the middle has it hanging on the side. The two

pillion riders are both sharing the same foot rest. All three can be seen without any helmets.



Kids are apparently bullet proof

Prabhadevi, Afternoon

In this image we can see an older adult with a kid on a scooter. The man is wearing a helmet, while the kid seated in the front and without a helmet. The kid here can be seen holding the bike visor for grip, and the direct sunlight blinds the kid as he closes his eyes.



Why should boys have all the fun

Prabhadevi, Afternoon

This image is of 2 women on a gearless scooter. The women here can be seen carrying multiple bags, the pillion rider holding the bags with one hand the other holding on to the seat for grip. The one riding the vehicle has a box kept in the foot rest area. Both can be seen without any helmets.



Chalo station chalo

Prabahdevi, Afternoon

This image captures 2 adults on a scooter, the driver using a helmet whereas the pillion rider without one. They have a huge suitcase in the front foot rest area of the scooter, resulting in the driver unable to rest his foot properly. The woman on the back uses her handkerchief to block off the sunlight. "Chalo station chalo" is a Hindi phrase meaning "Let's go to the station."



Choose To See

Don't look back in anger as Oasis once sang, is what many Mumbaikars seem to follow on the streets. With such dense streets, fender benders are bound to happen, and with the visibility altered in so many vehicles even more likely so. A driver's eyes are either flooded with too much light, or it receives too little of it. Either way they keep rolling.

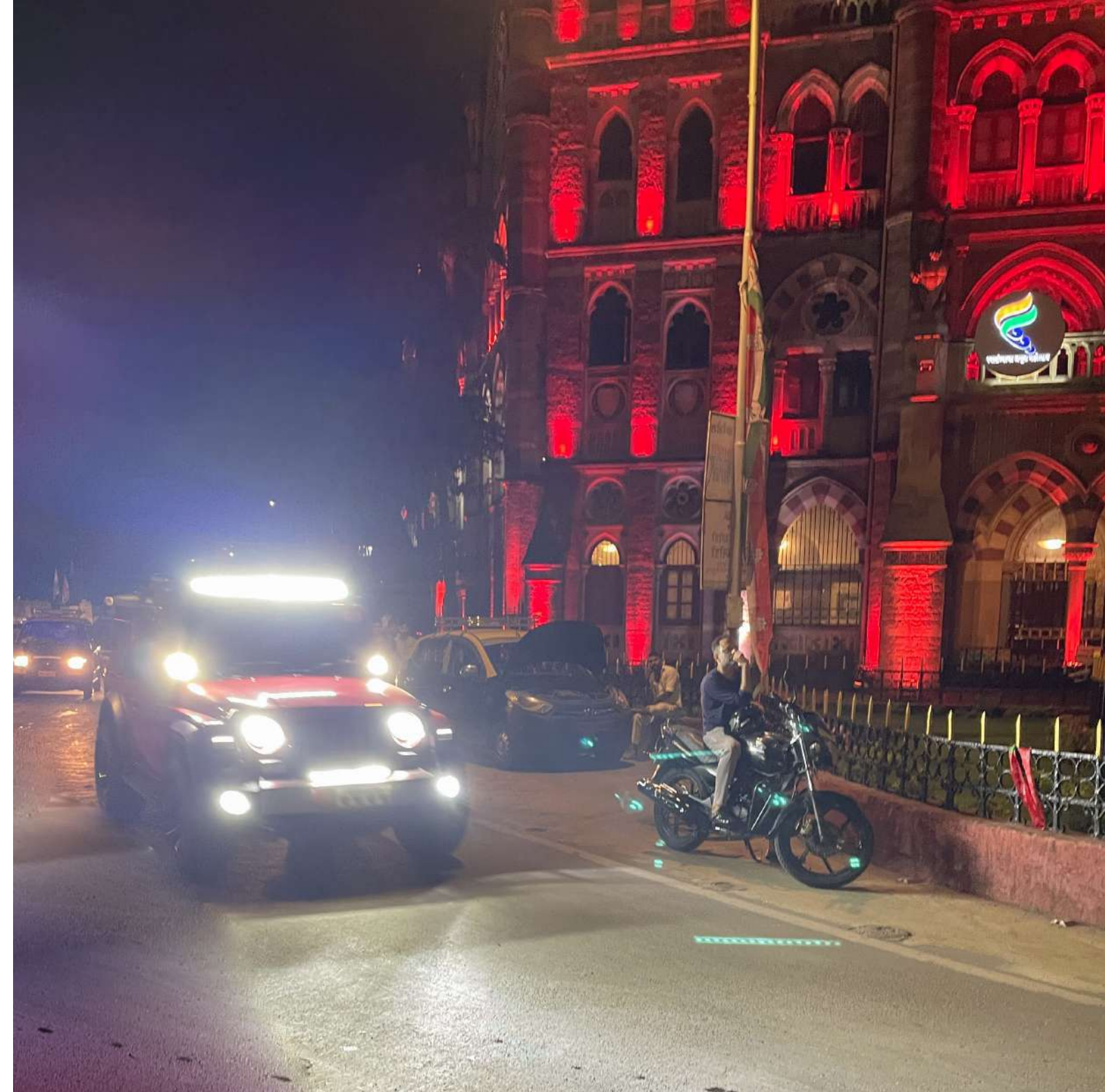


Leaving behind the darkness

Chhatrapati Shivaji Maharaj Terminus, Night

This image shows a jeep (Mahindra Thar) with modified bar lights and fog lights all on at high beam, blinding everything that faces it. The picture was taken in front of CSMT and in a traffic flow. The picture was taken late at night. In the image there is a man on a bike parked in the side, while a stalled taxi is on the side with the bonnet open, while the driver of the taxi

patiently sits on the side. In the background, the Birhanmumbai Municipal Corporation building is lit up in red.



Personalization over utility

Marine Drive, Night

This is an image of a car (Maruti Suzuki Ritz), which is used as a local taxi. With its yellow and black colour. This particular vehicle has traditional decals and ornamentation throughout the rear, compromising the rear visibility of the vehicle. The image was taken late at night along the Marine Drive area.



Dirt as clear as day

Mumbai Central, Afternoon

This image was taken from the inside of a taxi. The vehicle is stuck in a traffic with other fellow taxis. This particular vehicle windsheild is filled with dirt, dust and wipe marks hampering the visibility of the vehicle.



Driving around in a sunglass

Chuna Bhatti, Afternoon

This image is that a customized car (Maruti Suzuki Swift). Here the vehicle can be seen with highly tinted windows and decals on the rear. In addition, the vehicle has a customized number plate. The image was take in the broad daylight along the highways in Mumbai. The tinted glasses remind the viewer of seeing the world through sunglasses.



Pirates of the night

Byculla, Night

Here is an image of a truck along the two-lane roads of Mumbai. We can see the truck with a single functioning headlamp, driving along the traffic. The low laying lamps provide adequate visibility in front, therefore the non-functioning lamp is not missed. The lack of a headlamp reminds one of a pirate with an eye patch. The surrounding had dim streetlight.

The image was taken at night, along the streets of Byculla.



Beyond Mobility

The automakers can never fully grasp how people utilize the vehicles beyond its intended purpose of transportation. People manage to extend the utility of these machines to aid them even achieve everyday mundane tasks which are completely unrelated to the essence of a vehicle being a mobility device.



Activate lounge mode

Dadar, Afternoon

This is an image of a elderly man seating on a scooter relaxing and using his phone, the man has both his legs folded up, and takes the support of the handle bar for the back rest. The posture adopted is similar to being seated on a couch. The scooter kept on the main stand is stable enough to comfortably accommodate him. The 2 wheeler can be seen parked

beyond the street along the foot path, while the other four wheelers can be seen parked by the sides of the street.



Activate ladder mode

Worli, Afternoon

This image is of a man using a scooter as a step ladder to assist in plucking something from the tree. While the area has a lot of vehicles parked, both 4 wheelers and 2 wheelers can be seen parked around that area, with a crowd of men behind the parking.



Activate tray mode

Colaba, Night

The image was taken at Colaba marketplace. just outside the KFC (Kentucky Fried Chicken)restaurant. The vehicle in the frame is a Toyota Hillux which was parked. We can see a empty KFC disposable cup laying on the bonnet of the vehicle. The bonnet was supporting the KFC paper cup which later fell down The vehicle is parked along with other cars in it's designated parking space near a



Activate hanger mode

Powai, Night

This image was capture in Powai, here the bike is parked on the side of the street, and we can see that the bike has two helmets hanging by the sides of the bike.



Activate co-passenger mode

Dadar, Afternoon

This image is that of a vehicle that was abandoned along the side of the road. Inside the vehicle is a brand new looking gallon kept in the passenger seat. Unlike the condition of the interior of the vehicle. The gallon stands out from the grittiness of its surrounding.



Activate couch mode

Kurla, Afternoon

This image was taken along the narrow streets of a low-income neighborhood of Mumbai, while on a moving auto rickshaw. Here in this image we can see a young man seating on a parked bike, with folded legs and barefoot, he casually uses his phone. Along the surrounding we can see a bicycle parked, a woman walking along the foot path, a young man on a

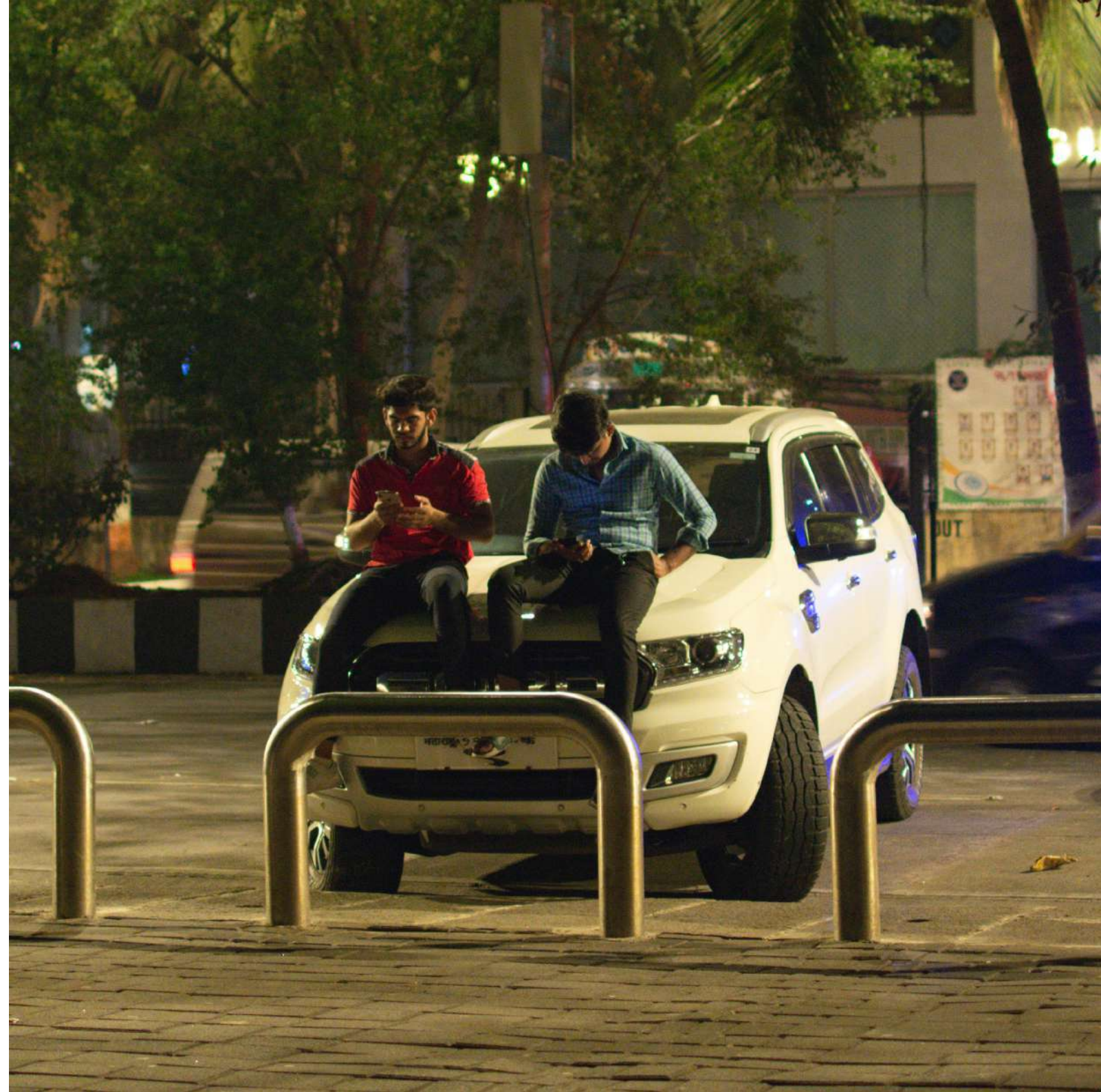
phone standing, another parked scooter with a man seating on it, and a group of men just walking around. The outside of the street is just as one would find inside the house sitting on a couch.



Dudes on the Hood

Marine Drive, Night

This image captures 2 young men seating on the bonnet of a parked car (Ford Endeavour) browsing through their phones. The photo was taken along the Marine Drive area, late at night. Along the area we can see cars plying around in both the direction and there is a clear demarcation of the vehicle area and the pedestrian area.



Urban storage solution

Dadar, Evening

This photo was captured along the streets a Dadar. This is an image of a parked car (Maruti Suzuki Omni) which was abandoned on the side of the street. The abandoned vehicle was converted in to a storage unit, where we can see heaps of waste materials just piled up inside the vehicle.



Zzzz...

It gets tiring to be out on the streets of Mumbai, overloaded by the sheer number of obstacles in the way as waves of motorists and pedestrians. Paired with the mostly humid climate of the city, exhaustion is bound to occur. Mumbaikars demonstrate how to beat this exhaustion while still in out on the streets.



Kicking off into sleep mode

Fort, Afternoon

The image was taken in an afternoon, where we see a parked car (Maruti Suzuki Ertiga). The driver of the vehicle happened to be sleeping inside the vehicle with his legs resting on the window. While the world around him moves around, the man seems solace in sleep. We can see two construction trucks, a man getting in to his car and other cars parked on the



The office hour nap

Fort, Afternoon

This is a image was taken on an afternoon. Here we see a man sleeping inside on the front seat of a parked car with its seat reclined. Along the road we can see a bunch of vehicles parked by the side of the road. Behind the car we can also see a crowd of men with backpacks moving towards the alley. Despite the movement and hot weather, the driver chases his dreams.



The emergency nap

Fort, Afternoon

This image was taken around the Fort area, on an afternoon. Here we can see the emergency exit of the bus open, and inside there is a man sleeping on the floor, the bus is parked by the side of the road, under the shade of a tree. Opening the emergency door enables the flow of air resulting in some comfort.



Good night sleep tight

Chembur, Midnight

This image was taken in the middle of the night. Here we can see a man sleeping fully covered with a bedsheet in the rear seat of the auto rickshaw. The vehicle is parked in a taxi parking area, and we can see multiple taxi parked in that area. The vehicle just parked underneath the street light, the street light brightly shines on the person sleeping. While the sheet covers the body.



Trunk or bed?

Dadar, Afternoon

This is an image of a man sleeping in the trunk (bed) of the truck in broad daylight. He has laid a sheet on the trunk and uses some folded fabric as pillow. Around the vehicle we can see other vehicles moving around in the sides, and on the left we see pedestrians walking around. The person tries to catch sleep in all the din and noise of the day.



Parking into sleep

Prabhadevi, Afternoon

This is an image of a taxi, this is a commercial vehicle used for online taxi services. Here the driver had his seat reclined and napping. Parked in the side of the road, he was not bothered by the busy traffic of Mumbai. His windows are closed and possibly the AC of the car is switched on providing him restful sleep.



Sleeping duty

Colaba, Post-Midnight

Here is another image of a Kali peeli, the infamous taxis of Mumbai. Here we can see a man sleeping inside the vehicle on the rear seat. He is sound asleep and not bothered with the light from the street lamp. Similar to typical taxis, this car (Maruti Suzuki Eeco) has a roof mounted carrier.



After Life

Needs change, things break, and all products have expiration dates, vehicles too. Some lose their value as a mobility device but find new meanings, some gather dust in the ever filling graveyards of the city of Dreams.



Dead or alive

Chandivali, Afternoon

Dead or alive is the irony between the two parked vehicles. Both the vehicles are two wheelers, and both carry some sort of attachments in the rear, but both face the different direction. One is a functional bike while the other is abandoned. Both these vehicles were parked on the footpath in front of a closed shutter, and if we look at the abandoned bike

side we see the shop with closed shutter while the other side with the bike had the shop open. Thus one side shows activity while the other is its dual.



Watching as the world vrooms on
Kanjurmarg, Afternoon

This image was captured along the road in Kanjurmarg. A set of abandoned vehicles lay piled up under the flyover bridge and just beside the pile of the abandoned is the main road where thousands of vehicles passes through during the day.



The last of us

Fort, Morning

This image was taken in the Fort area and along the street. There lay an abandoned car (Hindustan Motors Ambassador). The Ambassador as a vehicle is discontinued and no longer exists in the market. The vehicle is now parked up to collect dust and people writing on the vehicle, the missing headlamps and the wire protruding out of the headlamp housing. Perhaps this too depicts the end of all vehicles in Mumbai.



Conclusion

The fast-paced megapolis of Mumbai has an enormous number of vehicles ever-increasing through the cityscape. With millions of people living in the same space as these vehicles, numerous human-vehicle interactions happen throughout the streets. Through the photographs, we have captured some of these day-to-day relationships that might be a common sight to many. These have become so ingrained in our everyday lives that most have stopped noticing the peculiarity of these occurrences. Most people who have lived long enough in the city would think of them as a normal sight and never think beyond it. As designers, we have attempted to make the readers see their own city and everyday commute from a different perspective. Once the eyes are attuned to spotting these unusual usages of vehicles, one realizes that these unique interactions keep happening everywhere around them all the time. In most cases, these have an element of hazard accompanying them. This dynamic hazard may directly or indirectly affect the user or pedestrians on the road. Despite being hazardous situations these interactions give wonderful insights into the lifestyle of the people involved.

The ways in which Mumbaiers use their vehicles even beyond their designed utility is a fascinating insight into the innovative spirit and resourcefulness of the city's humans and poses a challenge for designers. The bustling streets of Mumbai are always overwhelming and scary for outsiders but it surely does teach one the perks of adaptability and flexibility. This is a testament to the city's unique culture and the resilience of its people. Studying the human dimension of mobility in Mumbai enables one to see beyond just the basic functionality of a product, which in this case are the vehicles. Mobility companies in India constantly are pushing for safer vehicles, investing heavily in research and development in this aspect. However what is evident from all the images captured is that resourcefulness and convenience trumps safety and well-being. This presents a rather enormous challenge for designers of transportation systems. Understanding this is crucial in the automotive industry as it is indicative of the unaddressed needs of the population. The streets of Mumbai see the most diverse range of humans and transport on it. From the luxury import cars to hand carts, from paws and hooves to the most expensive stilettos. With this comes the interesting dynamic interactions between these unique elements of the streets. What gets highlighted in the book is the lifestyle of the common people of Mumbai. There is also another facet to this city of dreams, the life of the ultra-rich, a glimpse of this glitz and glamour is captured in the Volkswagen Beetle in front of the *Grand Hotel*, Fort, as the last image of the book.



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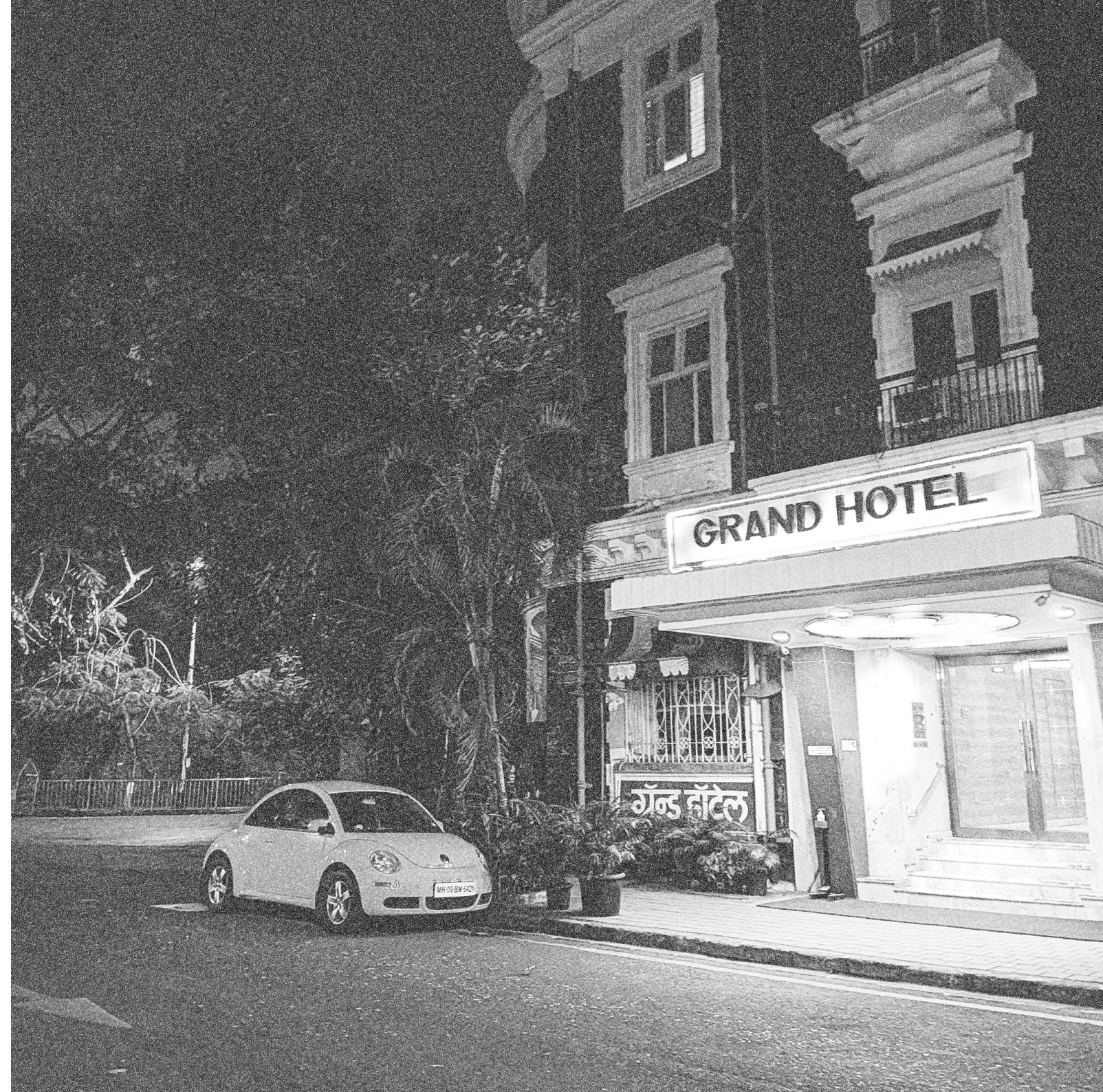
Tekhengutso Therieh is pursuing his Masters in Mobility and Vehicle Design from IDC School of Design, IIT Bombay. He has a Bachelor of Design from the Department of Design IIT Guwahati. He is passionate about understanding different cultures and traditions and views them through the lens of a designer. He is also an avid cyclist and is into photography.



Sugandh Malhotra, PhD, has over nineteen years of professional experience in industrial design and automotive design industry. His research interest areas include design research methods, future design possibilities, trend research and design forecasting and sustainable design. Dr. Malhotra has been a recipient of several national and international awards.



Vivek Kant, PhD, is cross-trained in both systems design engineering and cognitive/behavioral sciences. His research interests are human-centred digitalization, human machine interaction design and human systems integration in complex sociotechnical systems.



Move Mumbai

Kali Peeli and Beyond

“Move Mumbai” is a photographic journey that delves into the relationship between people and their vehicles in Mumbai. Mumbai with its diverse population of millions and over six hundred vehicles per kilometre presents a wide array of interactions between the dual elements of humans and vehicles. The images highlight the unique mannerisms and ways in which people use and interact with their machines, which go beyond their intended purpose. This appropriation of vehicles in a manner reflects the economic constraints, cultural values, and resourcefulness of Mumbaikars. The book intends to stir up curiosity in the minds of the readers and attempts to show the everyday mundane street life through a different perspective.

