Kunal Chhabra

Electrical Engineering — **B.Tech**
Machine Intelligence & Data Science — **M.Tech**
Indian Institute of Technology Bombay

+91 7015142639
kunalchhabraiitb@gmail.com

Examination	University	Institute	Year	CPI/%
Graduation	Indian Institute of Technology Bombay	IIT Bombay	2024	

Completed Minors in **Computer Science and Engineering, IIT Bombay**

SCHOLASTIC ACHIEVEMENTS

- Secured an **All India Rank 110** (among **1.2 Million** candidates) in **IIT-JEE Main** conducted by **NTA** *(2019)*
- Achieved an **All India Rank 514** (among **0.2 Million** candidates) in **IIT-JEE Advanced.** *(2019)*
- Shortlisted among **top 30** students for **Jane Street** Quantitative Trading Camp(QTC) across **Asian colleges** *(2021)*

WORK EXPERIENCE

CLO New Issue | **Structured Credit Intern** | *Sales & Trading, Morgan Stanley* *(May'23-Jul'23)*

- Structured the overall terms of the whole **CLO issuance deal** and prepared the cash flows for debt and equity tranches
- Maximized equity returns for variable **CPR**, **CDR**, call date, **RP** & **SOFR** 3m Forward curve in current market scenario

Market Updates & *Option Pricing* | *Client Analysis* | *Corporate Sales Intern* *(May'22-Jul'22)*

- Provided effective **trade ideas** for **FX** currencies and priced exotic **options(Call Spread, Short Strangle)** around them
- Created Client Analysis Template covering finances & credit ratios through **Bloomberg** used by **Global Head,Sales**

Research Consultant | *WorldQuant Brain* *(Dec'22-May'23)*

- Designed **7** mathematical predictive models of various financial instruments(**alphas**) for **USA TOP3000** liquid stocks
- Implemented an alpha with **4.69** sharpe ratio, **20.06%** Returns and just **0.82%** Drawdown in Out-of-sample tests

API Building & Testing | **30-minute Delivery Strategy** | *Fraazo* *(Dec'21-Jan'22)*

- Built **CRUD APIs** for Fraazo Stores through efficient **MongoDB** queries in **Ruby on Rails** and tested using **Postman**
- Devised **core logic** for **30**-minute express delivery to customers based upon distance, riders and packers availability

KEY PROJECTS

Pairs Trading using Reinforcement Learning | *Master's Thesis* *(Feb'24- Present)*
Guide: Prof. Piyush Pandey | Center of Machine Intelligence & Data Science

- Applied **cointegration** test and clustering methods among **Nifty50** stocks for finding best pair for daily **pairs** trading.
- Hypertuned an **alpha** based upon rolling Z-scores with a mean ARR of **18%** after accounting for transaction costs
- Experimenting with exploration-exploitation based **RL** architectures for trading pairs both daily and intraday

TextSpaceTime Models | *Bachelors Technical Project* *(Jan'23- Apr'23)*
Guide: Prof. Sunita Sarawagi & Prof. D. Manjunath

- Built a **regression** model with time, space and indicator context for **forecasting** and **missing value imputation** tasks
- Achieved a **MAE** loss of **0.68** with **90:10** train-test split with continuous missing data on **Walmart** and **NDAP** datasets

Senior Design Engineer,Team Rakshak *(Aug'20-Jul'21)*
Student Initiative to develop a fleet of cost effective UAVs, Controls Subsystem — *IIT Bombay*

- Part of a team consisting of **30+** students for developing fleet of **UAVs** for participation in **AUVSI-SUAS** Competition
- Developed **python scripts** for server **login**, UAV mission **extraction** and **upload** of collected image **data**

TECHNICAL SKILLS

Programming	C++, Python, MATLAB, VHDL,Assembly, HTML, CSS, PHP, JavaScript, NodeJS
Software & Tools	ROS, Numpy, Keras, Tensorflow, PyTorch, Quartus, Excel, Git, Pandas
Key Courses	Advanced ML, Data Structures & Algorithms, Computer Networks, Linear Algebra

POSITIONS OF RESPONSIBILITY

Internship Coordinator | *Placement Cell* | *IIT Bombay* *(Jun'21 - Jun'22)*

- Part of a **24-member** team responsible for streamlining the **Internship** Process for **1500+** students.
- Solicited relations with **200+ MNCs** in sectors including **Software**, **Consulting, FMCG** and **Finance**
- Contacted **100+** established **Foreign Universities** to improve International Research Exposure for students

Activity Associate | *National Service Scheme (NSS) Web* | *IIT Bombay* *(Jun'20 - May'21)*

- Updated **Team Lists** for the year **2020-21**,minor front-end work on the **Official NSS Webpage** using **CSS** and **JS**
- Contributed in front end work of **5** NSS Websites and managed database for the same using **MongoDB**