Mortada Mehyar

CONTACT INFORMATION

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SUMMARY

I am a software engineer and an enthusiast for everything about math, science, and technology. My professional background is in math, software development, and quantitative finance.

I work on distributed computing, data analysis, big data systems, and machine learning algorithms. I also contribute to various open source data analysis software such as pandas and pyspark. I created fredapi, a Python library for accessing the FRED macroeconomic datasets.

My 15 minutes of fame: Fortune, The Verge, and Popular Mechanics. See more details on my personal blog.

WORK EXPERIENCE

Tesla, Palo Alto, CA   **Dec 2018 - Mar 2022**

Senior Staff Software Engineer, Autopilot AI

I am one of the founding engineers and engineering manager of the Autopilot AI Tooling team. The team builds in-house labeling tools that power Tesla's most advanced self-driving features. The labeling tools we build are a key part of Autopilot and are considered highly impactful by our CEO.

Tesla, Palo Alto, CA   **Jan 2017 - Dec 2018**

Senior Staff Software Engineer, Autopilot

I work on big data infrastructure that handles a wide range of telemetry data such as images, videos, maps and sensor readings from Tesla's second-generation Autopilot hardware. I build data pipelines that enable the processing and preparation of our neural network training. I also contribute to the software design, code reviews and testing for our machine learning code base.

Tesla, Palo Alto, CA   **Aug 2015 - Jan 2017**

Staff Software Engineer, Autopilot

I build the first prototype maps for Tesla Autopilot and lead the team that produces and maintains maps used by Tesla's first-generation Autopilot hardware. As one of the founding engineers on the team, I design and implement a large portion of the data engineering infrastructure and distributed algorithms.

Incapture Investments, New York, NY / San Francisco, CA   **Sep 2013 - Mar 2015**

Vice President of Quantitative Research

Incapture is a quantitative hedge fund. I build data-driven investment strategies, and lead the development of our data science platform using the scientific computing stack in Python (pandas, scipy, numpy, scikit-learn).

First Quadrant, Pasadena, CA   **Jan 2011 - Aug 2013**

Investment Researcher

First Quadrant is an investment management firm with approximately $17 billion in assets under management. I am a member of the investment research team. I divide my time between building research infrastructure and creating new quantitative trading models. I develop software components that enables portfolio construction, portfolio optimization, backtesting and risk analysis.

I work on data analysis and investment model research in Python. I work with macroeconomic timeseries data and various kinds of proprietary market data. I apply statistical and machine learning techniques and create new investment models that trade currencies and equity index futures.

Yahoo! Inc., Burbank, CA   **Oct 2006 - Apr 2009**

Senior Software Developer

I work on Yahoos online advertising systems that optimize ad placements to web pages by content. The advertisements are served billions of times per day across multiple Yahoo websites (such as Yahoo Finance and Yahoo Sports) and various third-party publishers.

I design and develop software components that handle user requests, enable dynamic auction algorithms, and store accurate reporting of all events in a distributed system. I also work as a lead engineer on the data schema committee. I collaborate across multiple teams to ensure accuracy and availability of data for analytics and reporting.

EDUCATION   **California Institute of Technology**   **Sep 2002 - Aug 2006**

Ph.D. in Electrical Engineering

- Research Group: Networking Lab http://netlab.caltech.edu/

- Advisor: Steven H. Low (Professor in CS and EE)

California Institute of Technology   **Sep 2001 - Jun 2003**

M.S. in Applied Physics

- Advisor: Rudolph A. Marcus (Nobel laureate in 1992)

National Taiwan University, Taipei, Taiwan   **Sep 1998 - Jun 2001**

B.S. in Mathematics (finished in 3 years)

PROGRAMMING SKILLS
- Advanced knowledge of Python, C/C++ with experience in Java and JavaScript.
- Advanced knowledge of various source control systems including Git and SVN.
- Advanced knowledge of Hadoop/MapReduce, Spark and Amazon Web Services (EC2, S3).
- Familiar with web development frameworks such as LAMP (Linux, Apache, MySQL, PHP) and Django.
- Familiar with HTML/CSS, jQuery and d3.

HONORS AND AWARDS
- Shannon Prize, 2002 (best student in the Information Theory class by Prof. McEliece)

- Caltech Tuition Award and full Scholarship, 2001

- Early Graduation Award, 2001 (granted a Bachelor degree in 3 years)

LANGUAGE SKILLS
- English (fluent)
- Mandarin (fluent)

PUBLICATIONS   "Optimization Flow Control with Estimation Error", Mortada Mehyar, Demetri Spanos, and Steven Low. *Proceedings of IEEE Infocom*, 2004, Hong Kong.

"Duality-Based TCP Congestion Control with Error Analysis" **(Invited)**, Mortada Mehyar, Demetri Spanos, and Steven Low. *Performance Evaluation and Planning Methods for the Next Generation Internet*, Kluwer Academic Publishers, 2004.

"Distributed Averaging on Asynchronous Communication Networks", Mortada Mehyar, Demetri Spanos, John Pongsajapan, Steven Low, and Richard Murray. *Proceedings of IEEE Conference on Decision and Control*, 2005, Spain.

"Distributed Averaging on Communication Networks", Mortada Mehyar, Demetri Spanos, John Pongsajapan, Steven Low, and Richard Murray. *IEEE Transactions on Networking*, Aug 2007.

"Optimal Strategies for Efficient Peer-to-Peer File Sharing", Mortada Mehyar, Weihsin Gu, Steven Low, Michelle Effros, Tracey Ho. *International Conference on Acoustics, Speech, and Signal Processing*, 2007, Hawaii.

TEACHING EXPERIENCE

- Teaching Assistant for Introduction to Control of Physical Systems, Caltech, 2004
- Teaching Assistant for Networking, Caltech, 2003
- Teaching Assistant for Introduction to Quantum Mechanics, Caltech, 2002
- Teaching Assistant for Solid State Electronics for Integrated Circuit, Caltech, 2001