Raymond Chang

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Education

University of California, Los Angeles *Sep 2016 - Present*
MS in Physics Los Angeles, CA
Ph.D Candidate in Physics
- Interrupted from April 2021 to August 2023 due to the mandatory Korean military service.

Northwestern University *June 2016*
Bachelor of Science in Physics and Astronomy Evanston, IL

Work Experience

Data Scientist, Peoplefund Company Incorporated *Sep 2022 - Jul 2023*
Data Strategy Team Seoul, South Korea
- Optimized the loan approval strategy model, cutting runtime from 3 days to 10 minutes, elevating the product into a viable solution for enterprise-level lenders.
- Designed and implemented a new loan performance prediction model, reducing MAPE from 41% to 6%.
- Defined the comprehensive objective function and completed code architecture for a loan profit optimization model. Its backtesting results conservatively estimate a 5-18% increase in revenue.
- Led collaboration with engineering and business teams to incorporate modern data science tools, such as Superset, MLFlow, and others, streamlining operations and standardizing documentations.
- Deployed proof-of-concept products, supplying full-stack codes to support engineering teams in further development.

Data Scientist, Voithru Corporation *Nov 2021 - Sep 2022*
Data Team Seoul, South Korea
- Launched and managed the company's first-ever fraud detection system based on freelancer behavior logs on the company platform, detecting 1000+ fraudulent translations (5-10% of total) per month.
- Developed a novel ranking system to oversee 1,700+ freelancers, integrating 12+ performance metrics derived from feedback by product and quality management teams.
- Deployed the first deep learning subtitle categorization model with an approximately 90% accuracy rate to provide insights for the quality management team and the fraud detection system.
- Built and maintained Apache Superset dashboards to visualize freelancer performances and statistics.
- Proposed a machine-translation-assisted translation experiment design to improve productivity by over 20%, and kickstarted the platform development.
- Implemented a bioinformatics algorithm to automate audio-subtitle matching. Improved the in-house system's time efficiency by three orders of magnitude while drastically improving the accuracy.

Research Experience

Graduate Research Assistant, University of California, Los Angeles
Miniscope Project, Neuroscience Discovery Group *Jan 2019 - Apr 2021*
- Constructed a data analysis pipeline that streamlines the process of extracting the behavior modulated neuronal activities from raw data, which became the internal standard analysis package for the laboratory.
- Developed a wireless brain imaging device that can be implanted on live, unrestrained animals. Oversaw the circuit design, microcontroller codes, and data and power streaming protocols, leading to the introduction or improvement of 7+ features while maintaining the same power consumption.
- The wireless design received a 1.4 million dollar grant from the National Institute of Health for its large-scale piloting experiment and is currently deployed in various UC labs.

Electrophysiology Signal Clustering Project, Center for Biological Physics *Dec 2016 - Jun 2017*
- Developed an algorithm for tetrode signal clustering based on the application of Monte Carlo method on a 4-D quantum Ising model.
- Improved the accuracy of detecting which brain cells the electric signals have originated from.

Technical Skills

Programming Languages, Frameworks, and Softwares
- Languages : Linux, Python, SQL, C, Matlab
- Frameworks : Apache Spark, Docker, Kubeflow, MLFlow, Jenkins, DBT
- Softwares : EC2, Apache Superset, Fusion 360, KiCad

Leadership Experience

Teaching Assistant, University of California, Los Angeles *Jul 2017 - Jun 2019*
Physics and Astronomy Department
- Worked as an instructor for discussion sections and laboratory sections for 100-200 students per quarter.
- Conducted weekly teaching sessions and reviews ; designed and graded quizzes, tests, and exams.
- Achieved 8.77 to 9.56 evaluation scores on a scale of 0-10.