Abrar Rahman

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Experience

- **Software Developer; Epic Systems** Feb 2023 - Dec 2023
  - As part of the Cognitive Computing team, integrated a NoSQL electronic health record with cloud infrastructure for training and running machine learning and generative AI in over 40 major hospital networks.
  - Drove improvements in cloud architecture, observability, and billing for OpenAI API requests, optimizing patient safety and operational efficiency.
- **Research Assistant; Center for Responsible, Decentralized Intelligence** Feb 2022 - Dec 2022
  - Pioneered decentralized finance (DeFi) research initiatives under Professor Dawn Song.
  - Developed novel ERC token and authored paper on crypto derivatives and risk mitigation strategies.
- **Software Development Engineer Intern; Amazon** May 2022 - Aug 2022
  - Developed NLP models to customize product recommendations for customers as part of Product Semantics team.
  - Used React, S3, DynamoDB, CloudSearch, and Vis.js to develop an integrated dashboard for product graph data.
- **Research Assistant; Lawrence Berkeley National Laboratory** Mar 2021 - Oct 2021
  - Led the development and comparison of gradient-boosted machine learning models for peak usage prediction, advancing electrical grid measurement and verification tools for the U.S. Department of Energy.
  - Created a suite of data cleaning functions, analytics tools, and visualizations for researchers at Berkeley Lab.
- **Software Engineering Intern; Tesla** May 2021 - Aug 2021
  - As part of the Supply Chain Operations and Automation team, streamlined existing AWS data pipelines, added authentication features to factory devices, and improved computer vision architecture.
  - Developed a validation pipeline for component shipments from suppliers worth $50,000 annually.
- **Software Engineering Intern; MolecularDX** May 2020 - May 2021
  - Scraped biomarkers to construct a patient cohort from an electronic health record database (100,000 patients).
  - Used scikit-learn and Stanford CoreNLP to develop a k-means clustering model for COVID-19 clinical outcomes.
  - Designed and implemented an API pipeline via Kong to bridge new and legacy technologies at the firm.

Skills

- **Languages:** Python, Java, C# / .NET, Javascript / Typescript, Golang, Rust, C++, Solidity, SQL
- **Frameworks:** Docker / Kubernetes, Large Language Models (OpenAI API), AWS, Microsoft Azure, React, Node.js, TensorFlow, Next.js, PyTorch, LaTeX

Education

- **The University of California, Berkeley** Aug 2019 - Dec 2022
  - Bachelor of Arts in Computer Science, Minor in Data Science, Certificate in Entrepreneurship & Technology
  - Coursework: Efficient Algorithms and Intractable Problems, Introduction to Artificial Intelligence, Introduction to Database Systems, Clinical Need-Based Therapy Solutions, Machine Structures, Data Structures, Entrepreneurship in Web3, Discrete Mathematics and Probability Theory, Principles and Techniques of Data Science, Computer Security, Blockchain/NFT Challenge Lab
  - Organizations: Course Staff for CS 61B (Data Structures), Computer Science Mentors, Bengali Student Association, Cal IEEE, Berkeley EECS & Research Symposium (BEARS)

Selected Projects & Publications

- **United States Patent and Trademark Office**
  - Rahman, Abrar. A System to Record, Display, and Authenticate Certificates and Peer-to-Peer Endorsements on a Decentralized Public Ledger. Filed December 25, 2022. Patent pending.
- **LLM Clinical Intake Chatbot**
  - Built with GPT-3.5, Azure Speech, Twilio API, and Vocode, enables users to complete automated patient registration via phone call.
- **arXiv Preprint; Quantitative Finance**
  - 2022. First author. Systematization of Knowledge: Synthetic Assets, Derivatives, and On-Chain Portfolio Management. Subjects: General Finance (q-fin.GN); Pricing of Securities (q-fin.PR); Risk Management (q-fin.RM)
- **IEEE International Conference on Big Data**
  - 2021. Modeling Influenza with a Forest Deep Neural Network Utilizing a Virtualized Clinical Semantic Network. 4th Special Session on Healthcare Data.
  - 2020. First author. A Machine Learning Based Modeling of the Cytokine Storm as it Relates to COVID-19 Using a Virtual Clinical Semantic Network (vCSN).
- **2021 IEEE International Conference on Tools with Artificial Intelligence (ICTAI)**
  - Disease Modeling with a Forest Deep Neural Network Utilizing Natural Language Processing and a Virtualized Clinical Semantic Network.