Abrar Rahman

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Experience

- **Software Developer; Epic Systems** Feb 2023 - Dec 2023
  - As part of the Cognitive Computing team, responsible for integrating a NoSQL electronic health record with cloud infrastructure for training and running machine learning and generative AI in over 40 major hospital networks.
  - Focused on cloud architecture, observability and billing for OpenAI API requests, and patient safety.
- **Research Assistant; Center for Responsible, Decentralized Intelligence** Feb 2022 - Dec 2022
  - Member of founding cohort of students in decentralized finance (DeFi) research center under Prof. Dawn Song.
  - Authored paper on crypto derivatives, changes in the regulatory environment, and risk mitigation strategies.
- **Software Development Engineer Intern; Amazon** May 2022 - Aug 2022
  - As part of Product Semantics team, developed NLP models to customize product recommendations for customers.
  - 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
  - Worked on advanced measurement and verification tools for electrical grids. Built, tested, and compared several machine learning models for peak usage prediction on behalf of the United States 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.