Arvind S. Menon

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Education

- **École polytechnique fédérale de Lausanne**, Switzerland *Sept 2022 – Jun 2024*
  Master of Science - MSc in Data Science 1^{st} Sem ongoing
- **Indian Institute of Technology Madras**, Chennai, India *July 2017 – May 2021*
  Bachelor of Technology in Engineering Physics CGPA: 8.91/10.00

Professional Experience

- **Adobe** Noida, UP
  Member of Technical Staff 1, Full-time *Jul 2021 - Present*
  - Role of a software developer in the Adobe Experience Manager Forms workflow team
  - Working on development of client feature requests, fixing customer reported issues and setting up tests using automated testing frameworks
- **Adobe Media and Data Science Research Lab** Noida, UP
  Summer Research Intern *May 2020 - Jul 2020*
  - Worked on a quantum machine learning research project titled "Q-means using variational quantum feature embedding". Offered a job offer as a full time software developer at Adobe.
- **Quantum Cryptography Project, QNu Labs** Bengaluru, KA
  Summer Project Intern *May 2020 - Jul 2020*
  - Implemented a secure error correction method for the privacy amplification step in a Quantum Key Distribution system using C and Python

Research Projects

Project Report - [report]

- **Online Estimation and Optimization of UBSR** [1] **[report]**
  Guides: Prof L.A. Prashanth & Prof. K. Jagannathan, IIT Madras *Aug 2020 - Present*
  - Presented as Bachelor's Thesis in my Senior year, and awarded the highest grade "S" (10/10)
  - Proposes stochastic approximation-based estimations schemes and stochastic gradient descent based algorithms for UBSR estimation and optimization, and derives non-asymptotic bounds on it's convergence
- **Q-means using variational quantum feature embedding[report]**
  Guide: Nikaash Puri, Adobe MDSR Lab *May 2020 - Jul 2020*
  - The project theorized a hybrid quantum-classical algorithm to learn a suitable quantum feature map which simplifies complex large datasets, having valid applications in **customer segmentation** and **Cloud-tech** for Adobe products
- **Applications of Deterministic Annealing EM algorithm[report]**
  Course Project, Guide: Prof. Sheetal Kalyani, IIT Madras *Feb 2020 - May 2020*
  - Furthered the applications of the DA-EM algorithm in Wireless channel estimation for signals with non-Gaussian noise modelled using K-component Gaussian Mixture Models
- **Survey of Indoor Positioning Systems[report]**
  Independent Project *Jun 2018 - Jul 2018*
  - Surveyed existing Indoor Positioning Systems and collected Received Signal Strength data in my home to create a 3D radio map using Octave and study it's dynamic nature

1: UBSR: Utility-Based Shortfall Risk

Arxiv preprint

(A1) Menon, A.S., Prashanth, L.A. & Jagannathan, K.P. (2021). **Online Estimation and Optimization of Utility-Based Shortfall Risk**. ArXiv, abs/2111.08805.[Arxiv]

(A2) Menon, A.S., Puri N. (2020). **Q-means using variational quantum feature embedding**. ArXiv.[Arxiv]

Relevant Coursework

O: Ongoing Course

- **Data Science**:
  Applied Data Analysis^O, Foundations of Data Science^O, Pattern Recognition and Machine Learning, Advanced Topics in Artificial Intelligence, Data Structures and Algorithms for Biology
- **Mathematics** & **Statistics**:
  Mathematics of Data^O, Information Theory, Estimation Theory, Applied Statistics, Differential Equations
- **Pre-requisites:**
  Applied Linear Algebra, Complex Analysis, Probability Foundations

Achievements

- Secured 2^{nd} place at Lauzhack Hackathon 2022 attended by 250 students
- Awarded a gold medal for securing an All Indian Rank of 265 in the 2016 National Science Talent Search Examination

Programming Skills

- **Languages**: Python, Java, C, C++, R, SQL, MATLAB, JavaScript, CSS, HTML
- **Data Science Tools**: Pytorch, TensorFlow, BeautifulSoup, Tableau

Positions of Responsibility

- **Project Leader, Electronics Club [presentation]** *Aug 2019 - Feb 2020*
  Centre for Innovation (CFI), the "Student Lab" of IIT Madras Chennai, TN
  - Led a team of 6 students to create an IoT module named "Cloud Beacon" and Android application to float information in a local area with the aim of increasing accessibility of small businesses, provide contactless services and local information dispensing service.

Extra-curriculars & Interests

Sports
- Represented IIT Madras at InterIIT 2017 in High jump
- Part of the Institute Football Team at Chennai Sportfest 2019
- Captain of Department Football team and Hostel Athletics team .

Talks Gave a talk about student life and opportunities as an Engineering physics student at IIT Madras, on a **Webinar conducted by Tensors (student run NGO)** to facilitate prospective students and promote a friendly student community.[youtube]