

# Arvind S. Menon

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## EDUCATION

- **École polytechnique fédérale de Lausanne**, Switzerland *Sept 2022 – May 2024*  
MSc - Master in Data Science *1<sup>st</sup> Semester*
- **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** *Bangalore, KA*  
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** <sup>1</sup>[\[report\]](#)  
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 (DA-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

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## ARXIV PREPRINT

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- (A1) Menon, A.S., Prashanth, L.A. & Jagannathan, K.P. (2021). **Online Estimation and Optimization of Utility-Based Shortfall Risk.** [\[Arxiv\]](#)
- (A2) Menon, A.S., Puri, N. (2020). **Q-means using variational quantum feature embedding.**[\[Arxiv\]](#)

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## RELEVANT COURSEWORK

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O: ONGOING COURSE

- **Data Science:**  
Applied Data Analysis<sup>O</sup>, Foundations of Data Science<sup>O</sup>, Pattern Recognition and Machine Learning, Advanced Topics in Artificial Intelligence, Data Structures and Algorithms for Biology, Fundamentals of Operations Research, Digital Signal Processing
- **Mathematics & Statistics:**  
Mathematics for Data<sup>O</sup>, Estimation Theory, Applied Statistics, Information Theory, Differential Equations
- **Pre-requisites:**  
Applied Linear Algebra, Functions of several variables, Probability Foundations

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## ACADEMIC ACHIEVEMENTS

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- Secured an All India Rank of 1322 (top 0.5%) in the JEE Advanced 2017
- Awarded a gold medal for securing an All Indian Rank of 265 in the 2016 National Science Talent Search Examination

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## PROGRAMMING SKILLS

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- **Languages:** Python, C, C++, R, SQL, MATLAB, Octave, Java, JavaScript, CSS, HTML
- **Data Science Tools:** Tableau, Hadoop, AWS, Azure, MySQL, TensorFlow, BeautifulSoup

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## POSITIONS OF RESPONSIBILITY

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- **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.
- **Manager, Alumni Relations Cell** *Aug 2018 - May 2019*  
International and Alumni Relations, IIT Madras Chennai, TN
  - Managed alumni events such as Reunions, Fundraising and Campus Tours for visiting alumni.
  - Designed the yearbook for graduating students and managed pre-graduation events for future alumni to help maintain a strong alumni network

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## EXTRA-CURRICULARS & INTERESTS

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- 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.[\[youtube\]](#)