

Jayroop Ramesh

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EDUCATION

- University of Oxford, United Kingdom** Oct '22 - Oct '26 (Expected)
DPhil (PhD), Computer Science @ Oxford Machine Learning in Neuroimaging (OMNI)
Advisors: Prof. Ana Namburete and Prof. Christian Rupprecht @ Visual Geometry Group (VGG)
- American University of Sharjah (AUS), United Arab Emirates** Sep '20 - Sept '22
Master of Science (MSc), Computer Engineering, GPA: 3.72/4.0
Advisors: Prof. Assim Sagahyroon and Prof. Fadi Aloul
- American University of Sharjah (AUS), United Arab Emirates,** Jul '14 - May '19
Bachelor of Science (Cum Laude) in Computer Engineering and Minor in Computer Science, GPA: 3.53/10.0

WORK EXPERIENCE

- Winterwood Interiors L.L.C, Dubai., Part-time AI Consultant** [Jun '19 - Mar '22]
 - Executed demographic target advertisements based on unsupervised learning of company records and social media.
 - Performed time-series forecasting using state-of-the-art algorithms across company verticals for setting KPIs.
- Cerebro Analytics, Dubai., Co-founder and CEO** [May '19 - Jun '20]
 - Co-created a MVP of a retail B2B Software-as-a-Service platform for delivering actionable marketing insights with real-time customer behavior tracking with YOLO, Elasticsearch and Microsoft Azure.
 - Responsible for startup logistics and operations, client acquisition channels, and investor pitches at Majid Al Futtaim, Landmark Group and New York University Abu Dhabi.
- Etisalat Digital, Dubai., Software Engineering Intern** [July '18 - Sep '18]
 - Deployed an automated system for real-time remote server health status tracking and anomaly detection by mining system logs and leveraging ensemble machine learning models.
 - Implemented a progressive web application based dashboard for consolidating and visualizing existing service information across the Middle East and North Africa regions with Ionic, Angular and NoSQL databases.

PUBLICATIONS

- Selected Publications Only (Full list: [Google Scholar](#)) *equal contribution
9. **Geometric Transformation Uncertainty for Improving 3D Fetal Brain Pose Prediction from Freehand 2D Ultrasound Videos.** [Paper]
MICCAI, 2024 (**Top 11%**). Jayroop Ramesh, Nicola Dinsdale, Pak-Hei Yeung, Ana IL Namburete.
 8. **Machine Learning-based X-Ray Projection Interpolation for Improved 4D-CBCT Reconstruction.** [Paper]
IEEE OJEMB, 2024. Jayroop Ramesh*, Donthi Sankalpa*, Rohan Mitra*, Salam Dhou.
 7. **Minimizing Virtual Machine Live Migration Latency for Proactive Fault Tolerance using an ILP Model with Hybrid Genetic and Simulated Annealing Algorithms.** [Paper]
IEEE Access, 2024. Jayroop Ramesh, Zahra Solatidehkordi, Khaled El-Fakih, Raafat Aburukba.
 6. **Evaluating Multimodal Wearable Sensors for Quantifying Affective States and Depression with NNs.** [Paper]
IEEE Sensors, 2023. Abdullah Ahmed*, Jayroop Ramesh*, Sandipan Ganguly*, Raafat Aburukba, Assim Sagahyroon, Fadi Aloul.
 5. **Explainable Machine Learning for Vitamin A Deficiency Classification in Schoolchildren.** [Paper]
IEEE-EMBS BHI, 2022. Jayroop Ramesh, Donthi Sankalpa, Amar Khamis, Assim Sagahyroon, Fadi Aloul.
 4. **Deep Learning Approach for Smart Home Appliances Monitoring and Classification.** [Paper]
IEEE ICCE, 2022. Jayroop Ramesh*, Abdul-Rahman Al-Ali, Ahmad Al Nabulsi, Ahmed Osman, Mostafa Shaaban.
 3. **Atrial Fibrillation Classification with Smart Wearables using Short-Term Heart Rate Variability and Deep Convolutional Neural Networks.** [Paper]
MDPI Sensors, 2021. Jayroop Ramesh*, Zahra Solatidehkordi, Raafat Aburukba, Assim Sagahyroon.
 2. **Towards Validating the Effectiveness of Obstructive Sleep Apnea Classification from Electronic Health Records using Machine Learning.** [Paper]
MDPI Healthcare, 2021. Jayroop Ramesh*, Niha Keeran, Assim Sagahyroon, Fadi Aloul.
 1. **A Remote Healthcare Monitoring Framework for Diabetes Prediction using Machine Learning.** [Paper]
Wiley Healthcare Technology Letters, 2021 (**Most Cited**). Jayroop Ramesh*, Raafat Aburukba, Assim Sagahyroon.

SKILLS

Languages Python (proficient), C++ (moderate), Java, Javascript/Typescript, SQL, MATLAB, Bash, L^AT_EX
Frameworks PyTorch (proficient), TensorFlow (proficient), Keras, CUDA, Django/Flask, OpenCV, git

SELECTED PROJECTS

[Platform] Mindspire: Mental Health Screening Tool, *Dubai Health Authority* [[Prototype](#)] [Jan '19 - Dec '22]

- An API endpoint for early detection of depressive states using vocal biomarker analysis and digital NLP phenotyping.
- Developed a [mobile application](#) calling the API for longitudinal mood monitoring.
- Applied self-supervised learning for the vocal sentiment analysis in terms of spectrogram features, and BERT embeddings in conjunction with Linguistic Inquiry and Word Count to identify cognitive distortions in [free-form text](#).
- Received a [grant](#) of \$20,000 for developing the prototype, which was presented at [Dubai Health Forum 2022](#), [World Expo 2020](#), and [GITEX 2019](#) in collaboration with the Dubai Government and Ericsson.
- Received an additional Research Grant of \$70,000 from the American University of Sharjah based on preliminary results to expand the multimodal and multilingual capabilities focusing on fairness, transparency and equity.

[Coaching] Odyssey Academy: Speedrunning University Courses [[Website](#)] [Sep '20 - Present]

- Co-founded a virtual bootcamp offering introductory STEM courses and coaching seminars to 45,000+ high school students on [Udemy](#).
- The presentation synthesizes animated narratives to improve understanding of foundational computer science algorithms and electrical systems, and is periodically released on [Youtube](#).
- Condensed the key material into a mobile application and conducted a initial study on effectiveness with 150 students from across the Gulf region and India, with results published after peer-review as [NICE](#).
- Awarded the [Public Engagement with Research](#) grant by Reuben College, University of Oxford to expand the educational project and reach underprivileged students in India.

[Bootcamp] Ericsson ONE Accelerator [[Website](#)] [Mar '18 - Oct '18]

- Developed a [use-case demo](#) for 5G centered around Decentralized Peer to Peer Mobile Devices Cloud computing, leveraging increased throughput and reduced latency of the medium.
- Engaged in discussions with the technical team of Ericsson, Intel and Etisalat and was 1 of 8 students from Middle East and North Africa region selected for [entrepreneurship training](#) at the headquarters in Stockholm.

Other Projects

- **Artificial Intelligence for Assessing the Correlation Between Sleep Apnoea and Comorbidities**, *AUS*, [[Thesis](#)]
- **Predicting Dementia Agitation with Sleep and Physiological Sensors using ML**, *AUS*, [[Undergraduate co-supervision](#)]
- **Estimating Knee Injury Progression with EMG and Flex Sensors using DNNs**, *AUS*, [[Undergraduate co-supervision](#)]
- **Monitoring Stroke Patient Rehabilitation with Smartwatch Sensors using ML**, *AUS*, [[Undergraduate co-supervision](#)]
- **Cloud infrastructure-as-a-service testbed implementation using OpenStack, CCSSR** [[Paper](#)]
- **Haneen: Dialect-aware English Keyboard for Arabic Transliteration and Sentiment Analysis**, *NYUAD* [[Code](#)]
- **H2O: Hardware to Optimize Water Consumption by Predictive Analysis of Meter Readings**, *Accenture* [[News](#)]

PROFESSIONAL RESPONSIBILITIES

University of Oxford	Graduate Common Room President, <i>Reuben College</i> Tutor for Information Theory, <i>Mathematical Institute</i>	[Spring '24 - Present] [Fall '22 - Spring '23]
American Univ. of Sharjah <i>Teaching Assistant</i>	Microcontrollers: Programming and Interfacing, <i>Prof. AR Al-Ali</i> Computer Networks, <i>Prof. Taha Landolsi</i> Data Structures and Algorithms, <i>Prof. Gerassimos Barlas</i>	[Fall '20 - Spring '22] [Fall '18 - Spring '19] [Fall '2017]

SCHOLASTIC ACHIEVEMENTS

- Awarded the **Golden Residency** for Distinctive Efforts in Academia by *UAE Government*
- Awarded **Best Paper Award** in Graduate Students Research Conference (GSRC) by *Khalifa University, UAE*
- Awarded **Best Exhibitor** at UAE Innovates Week by *Dubai Health Authority*
- Placed **Top 5** in the COVID-19 public safety hackathon by *Mohammed Bin Rashid University*
- Chosen as **Flag Bearer** by *College of Engineering, American University of Sharjah* at Commencement Ceremony 2019