

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