Uma Subbiah

San Francisco Bay Area, California (Authorized to work in the US with a H-1B visa)
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Education

- **University of Oxford** — Oxford, UK
  Master of Science in Computer Science, Distinction (in both coursework and thesis) — *Oct 2020 – Sep 2021*
  Select Coursework: Machine Learning, Advanced Machine Learning, Computational Biology, Computers in Society
  Thesis: "Automated Classification of Automated Classification of Cardiac Action Potential Phenotypes for Prediction of Drug-Induced Pro-Arrhythmic Risk". Research conducted with the Computational Cardiovascular Science group, Oxford
- **Amrita Vishwa Vidyapeetham** — Coimbatore, India
  Bachelor of Technology in Computer Science & Engineering — *Jul 2016 – Jun 2020*
  GPA: 9.91/10, 1st Class, Distinction, Batch Topper, Gold medalist
  Select Coursework: Neural Networks & Deep Learning, Machine Learning & Data Mining, Computational Intelligence
  Thesis areas: Deep Learning & Neural Networks, Computer Vision, Image Processing, Computational biology.

Experience

- ***Software Engineer,*** **Matician, Inc.** — **San Francisco Bay Area, California** | ***Nov 2021 – Present***
  - Working on computer vision & deep learning algorithms, as an integral member of the Perception Software Team.
  - Designed, implemented a computer vision SLAM benchmarking pipeline, using data version control & visualization tools.
  - Automated the calibration of robots, reducing the necessary human-involvement from >1.5 hours to 5 minutes per robot. Tracked, analyzed mechanical causes behind calibration defects – helping mech. engineers design a superior crown.
  - Worked on autonomous docking of robots; implemented algorithm able to estimate pose of the dock with < 4cm translational and negligible rotational error from within 25cm of the dock.
  - Integrated stereo camera rectification tests w/ internal UI, allowing anyone to quickly (2-3 mins) test camera calibration.
- ***Lead*****, Developer Student Club by Google Developers** — **Coimbatore, India** | ***Jan 2019 – Jul 2020***
  - Conducted over 7 workshops & hackathons; trained over 300 students on campus; increased student participation to 3-digit registrations. Invited (and sponsored) to the India DSC Summit by Google Developers at Goa, India
- ***Intern,*** **IIT Madras Research Park** — **Chennai, India** | ***May 2019 – Jul 2019***
  - Artificial Intelligence: Developed a prototype for predicting the presence of chronic kidney disease inpatients, using case-based reasoning in A.I.; my work was accepted for testing and verification, after the completion of my internship.
- ***Research Intern*****, Leeds Beckett University** — **Leeds, UK** | ***Feb 2018 – Jul 2018***
  - Conducted research on the use of Machine Learning to predict software bugs & reduce loss incurred by software companies.
  - Achieved an F1 score = 91.5% on an ML cloud-based service, presented at a conference in Portugal and published.
- ***Student Researcher*****, Smart Spaces Lab, Amrita Vishwa Vidyapeetham** — **Coimbatore, India** | ***Sep 2017 – Jul 2020***
  - Deep Learning, Computer Vision: Worked extensively on tasks involving object detection for intelligent living spaces.
- ***Intern*****, Seyyone Software Technologies** — **Coimbatore, India** | ***Nov 2017 – Jan 2018***
  - Implemented a retrieval-based service chatbot with machine & deep learning

Awards, Honors & Certifications

- 1st prize for Poster (entry 8 under Publications), Safety Pharmacology Society's Junior Investigator Poster Contest — *Oct 2021*
- Student Award for abstract (entry 8, Publications), Safety Pharmacology Society's 2021 Annual Meeting — *Sep 2021*
- Google Developers Certified TensorFlow Developer & Member of the TensorFlow Certificate Network — *Jul 2020*
  - *TensorFlow Developer certificate exam tests knowledge of image recognition, object detection, NLP, convolutional neural networks. Scored 100% in the preparatory DeepLearning.AI TensorFlow Course.*
- Graduated with the gold medal and highest GPA among 380 students in my undergrad class. — *Jun 2020*
- Topper of the Math-Science Stream in my high school final exams — *May 2016*

Select Projects – *Please see the project section of my website (uma-subbiah.github.io/) for a complete list*

- **Graduate Thesis Project**
  - Worked in the Computational Cardiovascular Science group at Oxford to develop an automated approach to classifying drug-induced heart abnormalities. Research presented at the Safety Pharmacology Society Conference (Oct 2021) & Cardiac Physiome Meeting – (Nov 2021). Please see entries 8, 9 under Publications.
- **Undergraduate Final Project**:
  - Worked on the analysis and enhancement of deep learning architecture – entries 2, 3 under Publications
- **IBM's Data Science Professional Certificate** - Capstone Project:
  - Identified 3 most ideal locations to establish a hospital in London, using data collection, analytics and machine learning.
- **Fuzzy Logic based Heart Disease Predictor:**
  - Developed a user-friendly Mamdani Fuzzy Logic System to predict heart disease w/ Python, scikit-fuzzy & matplotlib.

Programming Skills

- **Technologies**: Machine & Deep learning, Computer Vision, TensorFlow, PyTorch, Keras, Pandas, NumPy, Data Analysis and Visualization, SQL, Shell scripting, Git & GitHub
- **Languages**: Java, Python, C, C++

Publications – My research publications include 1 book chapter, 6 conference proceedings and 2 posters.

- *Please see my Google Scholar profile at bit.ly/UmaSubbiah for a complete list. (Also tabulated overleaf)*

(i) Book Chapter			***Research Institution:***
1.	Jan 2020, Springer	***Subbiah, U****., Ramachandran, M.&Mahmood, Z*., *2020*. Software Engg. Framework for Software Defect Management Using Machine Learning Techniques with Azure. In Software Engg. in the Era of Cloud Computing (pp. 155-183). Springer	*Leeds Beckett University*
(ii) Conference Proceedings			
2.	*Sep 2020 IEEE*	***Subbiah, U.****, Kumar, R. V., Panicker, S. A., Bhalaje, R. A., & Padmavathi, S. (2020, July).* An Enhanced Deep Learning Architecture for the Classification of Cancerous Lymph Node Images. In 2020 2nd ICIRCA (pp. 381-386). IEEE.	*Amrita Vishwa Vidyapeetham*
3.	*Jun 2020 IEEE*	***Subbiah, U****. and Padmavathi, S., 2020, February.* Analysis of Deep Learning Architecture for Non-Uniformly Illuminated Images. In 2020 International Conference on Inventive Computation Technologies (ICICT) (pp. 38-43). IEEE.	*Amrita Vishwa Vidyapeetham*
4.	*May 2020 Springer*	***Subbiah, U****. and Jeyakumar, G*., *2020*. Soft Computing Approach to Determine Students' Level of Comprehension Using a Mamdani Fuzzy System. In Intelligent Systems, Technologies and Applications (pp. 103-115). Springer, Singapore.	*Amrita Vishwa Vidyapeetham*
5.	Jan 2019 *Scitepress*	***Subbiah, U****., Ramachandran, M. and Mahmood, Z*., 2019, January. Software Engg. approach to bug prediction models using machine learning as a service (MLaaS), in Proceedings of the 13th ICSOFT 2018 (pp. 879-887).	*Leeds Beckett University*
6.	*Oct 2020*, *IEEE*	***Subbiah, U.****, D. Kavin Kumar, Thangavel S. K, P. Latha:* An Extensive Study and Comparison of the Various Approaches to Object Detection using Deep Learning: Presented: Intl. Conf on Smart Systems and Inventive Technology, IEEE	*Amrita Vishwa Vidyapeetham*
7.	*Jun 2021, Springer*	*Sundaram, A., Ravishankar, H.,* ***Subbiah, U****., Kadiresan, N., & Karthika, R.* (2021). Case-Based Expert System for Smart Air Conditioner with Adaptive Thermoregulatory Comfort. In Intelligent Systems, Technologies and Applications (pp. 403-418). Springer, Singapore.	*Amrita Vishwa Vidyapeetham*
(iii) Poster Presentations			
8.	*Oct 2021*	***Subbiah, U.,*** *Rodriguez, B., Passini, E.,* A Machine Learning Model to Improve Identification of Drug-induced Abnormalities in Cardiac Repolarisation. Poster at: *Safety Pharmacology Society Annual Meeting*, 2021; to be published in the *Journal of Pharmacological and Toxicological Methods, 2022*	*University of Oxford*
9.	*Nov 2021*	***Subbiah, U.,*** *Rodriguez, B., Passini, E.,* A Presentation on Machine Learning to Improve Identification of Drug-induced Abnormalities in Cardiac Repolarisation. Poster at: *Cardiac Physiome*, 2021.	*University of Oxford*