

# Emanuele Plebani

Palo Alto, CA | [banus80@gmail.com](mailto:banus80@gmail.com) | +1 (317) 645-5666  
[banus.github.io](https://banus.github.io) | [GitHub: Banus](#) | US Permanent Resident

## INTRODUCTION

Software engineer with 8+ years of industry and academic experience specializing in full stack development, cloud computing, and machine learning. Proven track record in developing and maintaining large-scale software projects, with 3+ years of development lead experience. Consistently demonstrate the ability to manage demanding workloads, provide key features within strict deadlines, and deliver strategic leadership while mentoring teams.

## SKILLS

**Languages:** Python, C/C++, JavaScript, CUDA, Perl, Java  
**Tools:** TensorFlow, Keras, PyTorch, ONNX, Docker, Flask, Git  
**Expertise:** Software engineering, machine learning, model deployment, language models, statistical modeling, object detection, image segmentation, visual search, 3D reconstruction, SfM

## PROFESSIONAL EXPERIENCE

JAN 2026 -  
PRESENT

**Senior Deep Learning Engineer** at IMAGRY, San Jose, CA

- Development of 3D object detection solutions for autonomous driving

DEC 2024 -  
JAN 2026

**Software Development Engineer II** at AMAZON, Santa Clara, CA

- Development of new AI-based shopping features for Alexa+, including Shopping Essentials, tracking deals on products and Autobuy based on price conditions
- Contribute to the design and implementation of LLM-based service APIs and data flows, mapping service dependencies, designing integration and load tests
- Maintain and improve existing Alexa Shopping features, including deal search and notifications, and integrating them in the new AI-based flows
- Managing data pipelines involving relational databases, event-based systems and data transformation steps
- Monitoring and improving the service infrastructure through Infrastructure as Code (IaC) on AWS, fixing configuration issues, and improving code quality

MAY 2022 -  
AUG 2022

**Research Scientist Intern** at META, Redmond, WA

- Developing an uncertainty-aware neural network model for eye tracking in the Aria project
- Developing out-of-distribution approaches to identify anomalous training sequences
- Running training on the internal cloud platform, integrating code in the main repository and reviewing code changes

JAN 2020 -  
MAY 2024

**Research Assistant** at IUPUI, Indianapolis, IN  
Supervisor: Prof. M. Dundar

- Designed and implemented an Android app giving context-based audio suggestions to blind/visually impaired people
- Classification of mineral signatures in hyperspectral images from the CRISM Mars experiment using Bayesian models, improved speed by optimizing hot spots and parallelizing execution
- Segmentation of different cell and nerve structures in neurohistological TEM images using U-Net and an ensemble of multi-scale models
- Data visualization for graphs and tabular data in D3 (JavaScript)
- Implementation of semi-supervised segmentation methods based on CNN and Transformers in PyTorch
- Implementation of deep open-world models for fine-grained class discovery
- Automated tagging and summarization of medical notes using recurrent neural networks and Transformer language models

JUN 2014 -  
JAN 2020

**Advanced Research Engineer** at STMICROELECTRONICS, Milan

- Initial design and development of the Cube.AI back-end, a tool to port neural networks from different deep learning toolboxes and ONNX to STMicroelectronics microcontroller platforms
- Optimizing memory and execution speed of neural nets on microcontrollers, with patents covering the algorithms
- Technical leadership and team coordination in the Cube.AI project, involving up to 30 people and 5 locations across Italy and France
- API design and setup of a container-based web service to demo the Cube.AI app internally and to customers
- Development of deep learning solutions for sensor data classification and activity recognition on microcontrollers, handling the full data pipeline including data collection, cleaning, training, and field evaluation
- Developing an Android application for the collection of datasets from sensor data via Bluetooth and automated the data-cleaning step
- Development, implementation in C++ and optimization of computer vision algorithms for visual search and object detection

OCT 2011 -  
MAY 2014

**Research Assistant** at POLITECNICO DI MILANO, Milan

- Development and implementation of content-based image retrieval algorithms for the MPEG CDVS standard
- Development of visual search algorithms with improved localization, multiple object search, and continuous tracking
- Person in charge of the deliverables assigned to Politecnico di Milano in the European Project ASTUTE ARTEMIS
- Advised theses on visual odometry using the trifocal tensor on omnidirectional images and robust plane detection in point clouds

## EDUCATION

---

MAY 2024 **Ph.D. in Computer Science**, Purdue University  
GPA: 4.0/4.0 | Advisor: Prof. Murat M. Dunder

JUL 2011 **M.S. in Computer Science Engineering**, Politecnico di Milano, Milan  
Grade: 100/100 with First Class Honors | Major: Engineering of Computing Systems

## SELECTED PUBLICATIONS & PATENTS

---

1. **E. Plebani**, N. Biscola, L. Havton, B. Rajwa *et al.*, “High-throughput segmentation of unmyelinated axons by deep learning,” *Scientific Reports* 12, no. 1 (2022): 1198.
2. **E. Plebani**, B. L. Ehlmann, E. K. Leask, V. K. Fox, and M. M. Dunder, “A Machine Learning Toolkit for CRISM Image Analysis,” *Icarus* 376 (2022): 114849.
3. L. Folliot, **E. Plebani**, and M. Falchetto, “Device and method for allocating intermediate data from an artificial neural network,” 2023, US Patent 11,609,851.
4. P. Karimi, **E. Plebani**, D. Bolchini, “Textflow: Screenless access to non-visual smart messaging,” In *26th International Conference on Intelligent User Interfaces*, pp. 186-196, 2021.
5. M. Paracchini, **E. Plebani**, M.B. Iche, D. Pau and M. Marcon, “Embedded real-time visual search with visual distance estimation,” *Image Analysis and Processing-ICIAP*, September 11-15, 2017.
6. A. Nicosia, D. Pau, D. Giacalone, **E. Plebani**, A. Bosco, A. Iacchetti, “Efficient light harvesting for accurate neural classification of human activities,” *ICCE*, 2018, pp. 1-4.
7. R. Varenne, J. M. Delorme, **E. Plebani**, D. Pau, V. Tomaselli, “Intelligent recognition of tcp intrusions for embedded micro-controllers,” *New Trends in Image Analysis and Processing-ICIAP*, September 9-10, 2019.
8. D. Tomè, L. Bondi, **E. Plebani**, L. Baroffio, D. Pau, S. Tubaro, “Reduced Memory Region Based Deep Convolutional Neural Network Detection,” arXiv:1609.02500, 2016.

## AWARDS & HONORS

---

APR 2024 Gersting’s Award for Outstanding Graduate Student - Purdue University  
FEB 2014 Best Demo Prize - GITTI MMSP Conference (IEEE Signal Processing)