

Andre Von Zuben

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Intel Corporation
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SUMMARY

Accomplished, enthusiastic consultant and entrepreneur with over fifteen years of research and development experience in software for consumer and industrial applications. Reputation for rapidly addressing technical challenges with creative solutions. Looking to join an organization that values leadership, performance, teamwork, and results.

EDUCATION

UCF – University of Central Florida Orlando, FL
PhD, Mechanical Engineering 2020 – 2023

- Research: Uncertainty quantification and calibration of computer models with artificial neural networks
- Research: Physics informed neural networks framework for FE and CFD analysis
- Research: Cardiac magnetic resonance image segmentation for 3D geometry generation
- Dissertation: Anatomically-guided Deep Learning for Left Ventricle Geometry Reconstruction and Cardiac Indices Analysis Using MR Images

UCF – University of Central Florida Orlando, FL
MSc, Mechanical Engineering 2020 – 2022

- Research: Image to image domain translation and weathering using generative adversarial neural networks
- Thesis: Deep Neural Networks for Extrapolation of Corrosion in Automobile Images

UNESP – Universidade Estadual Paulista Rio Claro, SP, Brazil
B.Sc. in Computer Science 2009 – 2013

- Best academic performance in the Bachelor in Computer Science degree for the “2013 class”
- Undergraduate Research: Dynamic adaptation of objects with AspectJ
- Undergraduate Research: Development of a NIOS II Processor Simulator with Coupled GDB Server for Remote Debugging

PROFESSIONAL EXPERIENCE

Intel Corporation Santa Clara, CA
AI applied scientist intern Sep 2022 – now

Implementing proof of concept AI-based products, leveraging state-of-the-art AI models.

Key projects:

- Implementation and maintenance of a Large Language Model (LLM) multi-GPU and multi-node pipeline that supports LoRA and regular finetuning methods.
- Creation and maintenance of finetuning and evaluation datasets for causal language models.
- Implemented a template engine for prompt engineering enabling the inference of multiple LLMs tasks.
- Design, development, and maintenance of APIs for multiple services.

University of Central Florida Orlando, FL
Graduate research assistant Jan 2020 – Dec 2023

Probabilistic Mechanics Laboratory member focused on merging physics-based domain knowledge, machine learning, and multidisciplinary optimization.

Key projects:

- 3D reconstruction of the left ventricle based on cine MR images, where we proposed anatomically-guided deep learning models for the segmentation of the left ventricle cavity and myocardium for short- and long-axis images and later presented a Gaussian process approach that leverages the information provided by our segmentation models for the epi- and endocardium reconstruction for the estimation and analysis of cardiac indices throughout the cardiac cycle, funded by the National Science Foundation (NSF).
- Image-to-image domain translation and weathering using generative adversarial neural networks (GANs).
- Design and development of a Physics-informed neural network (PINN) framework to aid with CFD and FE analysis.
- Engaged in projects with AWS and Baker Hughes.

Azure Capitals

Chief technology officer and Owner

Research and development contractor for:

- **GE Global Research** at Niskayuna, NY: software design, research, development, and documentation for the Usage Based Lifting project.
- **Baker Hughes** at San Ramon, CA: software design, research, development, and documentation for the AI Factory project
- **Equilibrium Energy** at San Francisco, CA: software design, research, and development. Co-responsible for the Constraint Guardrail service design and implementation and probabilistic time-series models research using Recurrent Neural Networks (RNN) and Gaussian process (GP).
- **Skylar AI Translation and Localization** at Piracicaba, SP, Brazil: software design, research, development, and consulting for the transcription and translation libraries, models, and applications.

Key projects:

- Dynamic Bayesian Network: created an app on Usage Based Lifting project to create dynamic Bayesian networks and schedule orchestrated runs to copy the files, update the data sources, run and update the model, using Apache Airflow.
- User-defined model registration: add the capability to users to register their own containerized model or service model to AI Factory and use them later.
- AI Factory Task Service: rewrite all the former task service to create scalable microservices, allowing it to scale up to thousands of instances, providing high performance on Kubernetes (GCP, AWS, and Azure) and on Docker environments.
- Skylar Transcription/Translation: refactored the transcription and translation methods, improving their overall accuracy.
- Skylar Closed Captions: created the first Brazilian solution to automatically caption Zoom and Microsoft Teams meetings and YouTube live streams.
- Skylar Live: restructured the project architecture to handle live events on a custom platform with thousands of simultaneous viewers.

New Soft Intelligence

Technical support analyst

Responsible for design and development of customizations, bug fixes, and technical support.

Key projects:

- eComex system: responsible for exportation, importation, and SAP integrations technical support.
- eComex / SAP custom integration fix, implementation, and maintenance on several customers.
- eComex / Oracle R12 custom integration fix, and implementation.
- Member of the team who created a new knowledge base system for the company.

Alfa Networks

Full stack engineer

Responsible for software design and development for commerce, industry, multilevel marketing companies, e-commerce, and surveys platforms.

Key projects:

- Electronic invoice: implemented invoice XML generation, signing, and transmission to the Brazilian's government services.
- POS: created a responsive point of sale web system to attend snack bars and cafes.
- Survey platform: designed a web platform where Human Resources companies could create and apply their own surveys to evaluate their customer's workers.

Intesis Consultoria Integrada

Full stack engineer

Responsible for e-commerce, content management systems, and websites development.

Key projects:

- CMS: Created a centralized content management system where people could manage the content from all websites hosted by the company.

PUBLICATIONS

- A. V. Zuben, E. Whitt, F. A. C. Viana, and L. E. Perotti, "Long axis cardiac MRI segmentation using anatomically-guided UNets and transfer learning," 12th International Conference on Functional Imaging and Modeling of the Heart, Lyon, France, June 19-22, 2023 (DOI: 10.1007/978-3-031-35302-4_28).

Limeira, SP, Brazil

Jan 2017 – Aug 2022

Limeira, SP, Brazil

Sep 2014 – Jan 2017

Limeira, SP, Brazil

Aug 2009 – Sep 2014

Limeira, SP, Brazil

Mar 2008 – Aug 2009

- A. V. Zuben, F. A. C. Viana, and L. E. Perotti, "Anatomically-guided deep learning for uncertainty quantification of left ventricle geometry based on short-axis MR images," *Engineering Applications of Artificial Intelligence*, Vol. 121, p. 106012, 2023 (DOI: 10.1016/j.engappai.2023.106012).
- A. V. Zuben and F. A. C. Viana, "Generative adversarial networks for extrapolation of corrosion in automobile images," *Expert Systems with Applications*, Vol. 213, p. 118849, 2023 (DOI: 10.1016/j.eswa.2022.118849).
- A. V. Zuben, K. Heckman, F. A. C. Viana, and L. E. Perotti, "A multi-step machine learning approach for short axis MR images segmentation," 11th Biennial Meeting on Functional Imaging and Modeling of the Heart, Virtual Event, June 21-25, 2021 (DOI: 10.1007/978-3-030-78710-3_13).
- A. V. Zuben, R. G. Nascimento, and F. A. C. Viana, "Visualizing corrosion in automobiles using generative adversarial networks," *Proceedings of the Annual Conference of the PHM Society*, Vol. 12 (1), Virtual Event, November 9-13, 2020 (DOI: 10.36001/phmconf.2020.v12i1.1148).
- Y. A. Yucesan, A. V. Zuben, F. A. C. Viana, and J. Mahfoud, "Estimating parameters and discrepancy of computer models with graphs and neural networks," *AIAA Aviation Forum*, Virtual Event, June 15-19, 2020, AIAA 2020-3123 (DOI: 10.2514/6.2020-3123).
- A. V. Zuben and F. J. Affonso, "Estudo sobre a Reconfiguração de Software em Tempo de Execução utilizando AspectJ," XXIV Congresso de Iniciação Científica da UNESP, 2012, Rio Claro, SP, Brazil.
- A. V. Zuben and F. J. Affonso, "Adaptação dinâmica de componentes utilizando aspectos," 14º Congresso de Iniciação Científica do UNICEP, 2011, São Carlos, SP, Brazil.

RELEVANT SKILLS

- Large Language Models and Generative AI.
- Python, NodeJS, Golang, Java, PHP, C, etc.
- TensorFlow and PyTorch.
- Angular, ReactJS, VueJS, etc.
- Oracle, PostgreSQL, MongoDB, ArangoDB, Firebase, etc.
- Docker, Kubernetes, Google Cloud Platform, and Amazon Web Services.
- Native Portuguese / Fluent English / Intermediate Spanish

HONORS AND AWARDS

- Second place at Undergraduate Research Showcase of the Institute of Geosciences and Exact Sciences at the Universidade Estadual Paulista "Júlio de Mesquita Filho" – UNESP (2013) – Development of a NIOS II Processor Simulator with Coupled GDB Server for Remote Debugging