Aaron M. Hosford

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Website | GitHub | HTML Resume | PDF Resume | LinkedIn | Patents

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Introduction

I am a highly creative and impassioned autodidact with an incisive vision and strong problem-solving skills. This is coupled with the drive and pragmatism required to turn big ideas into down-to-earth solutions. I am looking for an opportunity to put my considerable talents and decades of experience to good use, with the goal of making lasting contributions to the field of machine learning.

Accomplishments

- Patent pending for an anaphora resolution algorithm.
- Contributed to the initial public release and ongoing support of a banking chatbot used by millions of customers of a major bank.
- *National Merit Scholar* winner with full scholarship to the University of Texas at Dallas.
- Author and maintainer of the open-source XCS Python library, an object-oriented implementation of the eponymous XCS machine learning algorithm.
- Inventor of numerous proprietary machine learning algorithms, including work with deep learning, genetic programming, and reinforcement learning.
- Architect of a proprietary natural language and artificial intelligence system for open-ended reasoning and conversation. (work in progress)

Education

Dual major, Computer Science and Mathematics, 1997 to 2001

University of Texas at Dallas, Richardson, Texas

Autodidact and Machine Learning/AI Enthusiast, 1990 to current

Over 30 years of focused self-learning, practice, and experimentation

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Relevant Experience

Senior Software and Machine Learning Engineer

Wiser Solutions, Inc., San Mateo, CA - 2022 to 2024

Worked with a small team responsible for product matching. Responsible for code reviews and coaching of less senior team members, contributing to design decisions, and collecting, analyzing, and modeling product image data.

Key Accomplishments

- Developed a bespoke high-throughput image clustering algorithm for reliably identifying representative images for similar products across multiple online retailer sites.
- Designed & developed a data labeling pipeline for crowdsourcing training and evaluation samples appropriate to the problem domain.
- Comprehensive model analysis and evaluation, including the development of a novel framework for evaluation metrics appropriate to the novel problem space of N-ary representative image selection.
- Designed a responsive pipeline for continually applying the representative image selection algorithm to a data stream in the cloud.

Machine Learning Engineer / Software Engineer II

Insight Global / Bank of America, Plano, TX - 2017 to 2022

Worked as part of a small team responsible for the ML and NLP components of a virtual financial assistant – a groundbreaking chatbot serving tens of millions of bank customers. Responsibilities included collecting and managing data, problem analysis, process design, feature extraction, and the design, implementation, training, and performance metrics of ML/NLP systems. Problem space included entity recognition, intent classification, and anaphora resolution. Regularly collaborated with other experts to improve customer experience in accordance with stakeholder direction.

(Note: MLE role was limited to 2017-2020, at which time I was pulled away for work related to the COVID pandemic.)

Key Accomplishments

- Patent pending for an anaphora resolution algorithm.
- Significant improvements to intent and entity recognition model performance.
- Extensive enhancements to the team’s data handling processes and model metrics.
- Built natural language data labeling tools from scratch.
- Built bespoke heuristic/rule-based systems for entity extraction.

Lead Systems Architect

Ericsson, Plano, TX - 2014 to 2017

Led a kanban team in an agile environment, along with other senior developer responsibilities. Maintained libraries, performed code reviews, utilized delinting to ensure code quality, participated in paired programming sessions, managed Git source control repositories, and other day-to-day development activities. Trained and led an overseas team of Python developers.

Key Accomplishments

- Designed and built multiple automated predictive analytics pipelines using machine learning algorithms (including deep learning, market basket analysis, time series analysis, etc.) to optimize business decisions and processes.
- Architected and developed attila, an open-sourced Python business automation framework.

Programmer/Software Analyst

West Asset Management (now Alorica), Sherman, TX - 2006-2014

Designed and implemented business process automations, including ETL, reporting, and client systems automation. Performed client requirements analyses, involving direct interaction with technical and non-technical client personnel. Reviewed and tested other programmers' designs, code, and documentation. Trained and assisted fellow team members.

Key Accomplishments

- End-to-end design, implementation, and automation of $50,000,000+ new and existing client-facing financial and account data interfaces.
- Conception, design, and coding of extensive contributions to CommonUtilities, the in-house business automation library.

Software Engineer

Ericsson, Richardson, TX - 1998-2001

Coded network traffic simulations using the OPNET network traffic simulation engine. Worked with C, C++, Lisp, HTML, SGML, Perl (CGI), and Javascript.