Daniel Smith

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Experience

MOTOR Information Systems — Troy, MI
Full Stack AI Engineer — *Jun 2024 – Present*
- Used dynamic RAG to extract classification from unstructured text
- Helped build production application in Sagemaker and Kubeflow

Instinct Science — Remote
Lead Data Scientist — *Aug 2019 – Jun 2024*
- Built out Analytics reporting platform
- Helped build a new data warehouse to support analytics, using Redshift and Metabase
- Built speech to data extraction application for vitals data
- Developed and deployed machine learning models

Rocket Mortgage — Detroit, MI (Remote)
Senior Data Scientist - Consultant — *Aug 2017 – Jun 2024*
- Built the document classification model used to process the financial document pipeline, both for the serverside and mobile application
- Developed LLM and multimodal models to help automate appraisal reviews
- Constructed computer vision models for a range of use cases across the family of companies, from advertisement overlay for Rocket Auto to image quality pre-filtering at Rocket Mortgage to developing digital user profiles for Rocket Homes
- Started and led the weekly Deep Learning Journal Club, discussing and coding current research. Mentored 4 interns and numerous team members with their projects

Auto-Owners Insurance — Lansing, MI
Actuarial Technician — *Jul 2014 – Aug 2017*
- Built models to predict insurance claim frequency and severity using GLMs
- Built tools to perform variable selection, interaction detection, and outlier analysis
- Developed tracking reports to monitor the performance of models
- Worked as the lead project coordinator for the Commercial Auto pricing algorithm
- Passed actuarial exams P, FM, MFE, C, and S

Furman University — Greenville, SC
Visiting Assistant Professor — *Aug 2013 – Jul 2014*
- Published research: The behavior of the Chern Scalar Curvature under the Chern-Ricci flow, with Matt Gill, Proceedings of the American Mathematical Society
- Presented research lectures at UC Berkeley and UC Irvine
- Taught math classes on Probability, Statistics, and Calculus

Education

Michigan State University — East Lansing, Michigan
Ph.D. *Mathematics* — *Aug 2007 – Aug 2013*
Thesis: Stability of the almost Hermitian curvature flow

Michigan State University — East Lansing, Michigan
B.Sc. *Mathematics* — *Aug 2002 – Aug 2007*
Specialization: Actuarial Science - Additional statistics and probability courses

Skills

Deep Learning: Transformers - Language and Vision, Computer Vision - Classification, Localization, Object Detection, TensorFlow, PyTorch, HuggingFace Transformers

Classical Machine Learning: Generalized Linear Models, Ensemble Models - Random Forest, Gradient Boosting, Support Vector Machines, Statistical Methods - ANOVA, Clustering, PCA

Programming: Python, SQL, Git, Docker, AWS

Projects

Medical Imaging | *GitHub*

- This project contains tools for classifying and localizing abnormalities in medical images

Medical Summarization and Transcription | *GitHub*

- Tools for transcribing medical audio data with the ability to summarize and perform question-answering.

Publications

The Behavior of the Chern Scalar Curvature under Chern-Ricci Flow | *Proceedings of the AMS*

- We showed that finite-time singularities in the Chern-Ricci flow are characterized by the blow-up of the scalar curvature of the Chern connection

Stability of the Almost Hermitian Curvature Flow | *arXiv*

- I showed that Kähler-Einstein structures are stable under small perturbations for a new geometric flow, Almost Hermitian Curvature Flow, for Calabi-Yau manifolds and manifolds with a negative first Chern class

Volunteer

Detroit Area Pre-College Engineering Program (DAPCEP) Detroit, MI

Instructor *Feb 2018 – Aug 2018*

- Taught middle school students programming and hardware basics
- Built raspberry pi based computers and taught basic programming

Volunteers of America Lansing, MI

Data Analyst *Oct 2016 – Aug 2017*

- Performed data analytics on the effectiveness of different volunteering projects
- Ran exploratory data analysis on medical data to support grant applications