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STATEMENT OF PURPOSE

Seeking a 2025 summer internship in robotics, leveraging a decade of experience in predictive modeling, statistics, and AI as I transition into this field.

PROFESSIONAL EXPERIENCE

Duke University – Durham, NC **Jul 2024 to Present**

Teaching Assistant, AI Master in Engineering Program

- Assisting with student inquiries during office hours, grading assignments and exams, organizing online classroom materials.
- Courses include:
    - Python Bootcamp – Summer 2024
    - Modeling Process and Algorithms – Fall 2024
    - AI on Edge Devices – Spring 2025

Thrivent – Durham, NC (Remote) **Jan 2023 to May 2024**

Senior Data Scientist, Commercial Analytics and Underwriting Innovation

- Designed and built a non-NLP text extraction and search application for large medical PDFs. Web app built using Streamlit, python, and computer vision. Tool saw FTE savings of 2-3 employees from claims, as well as anticipated 3-4 FTE savings underwriting upon UW department adoption.
- Won the July 2023 companywide Hackathon (over 30 teams). Presented the developed tool to 3 C-suite members during a private meeting. The hack featured a question/answer extractive large language model. The model was applied to electronic health records to assist underwriters and claim consultants gather insights from these large documents. Hack planned as upcoming add-on to the previously mentioned Streamlit web app.
- Developed an automated sentiment analysis tool for the Voice of the Customer survey. Tool used 3 NLP models to identify customer complaints. Tool used to meet regulatory standard of responding to customer complaints within given timeframe.
- Automated select case manager email communication with financial advisors. Solution draws information from pdf documents to fill in email template fields. Emails focused on underwriting approvals, declines, and outstanding requirements.
- Created Thrivent's first set of underwriting triage models using XGBoost and Databricks. Models focused on predicted risk class placement.
- Mentored actuary building CatBoost model for annuity surrender identification.
- Authored Model Governance Standards covering 2 business areas. Standards followed newly formed corporate Model Governance Policy. As member of Model Governance Committee, selected as 1 of 3 members to present Model Governance Policy to executives for approval.
- Developed and taught Python, SQL, Facebook Prophet, and Databricks training courses for actuarial department as they moved to Databricks.
- Lead organizer of Thrivent's first Advent of Code event. Event garnered 100 participants.

Kemper – Chicago, IL **Feb 2021 to Dec 2022**

Catastrophe Management Lead, Catastrophe Modeling and Reinsurance

- Redesigned catastrophe management function for the organization. Set direction and garnered senior management approval for long-term vision, projects, and actions across teams.
    - Kemper was without a catastrophe modeler for several months prior to my arrival. I seized the opportunity to reshape this position and associated work in an entrepreneurial fashion.
- Conceptualized and coordinated Kemper's first Wildfire (2021) and Severe Convective Storm (2022) Forums, drawing on insights across Kemper teams and broker analytics. Department-wide actions

following resulted in several rounds of inspections to non-renew the worst priced homes saving over $2m, improved underwriting guidelines, and a new approach to identifying regions for growth using notional risks. Kemper's reinsurance broker asked for access to the notional risk analytics upon seeing results.
- Provided hurricane and severe convective storm rate relativity recommendations across multiples states for new and existing products using vendor models, GLMs in R, an artificial neural network in Python, and Tableau dashboards for end user interactivity. Updated rate relativities favored several home characteristics which were previously poorly priced and lacking adequate representation in Kemper's book of business.
- Developed Python GUI application to inspect data files for errors. The deep focus on data accuracy resulted in correction to dozens of longstanding data issues with home characteristics, line of business designations, and external form reporting with reinsurance savings impact of $800k per year.
- Wrote Python code to automate data processes, call APIs providing predicted catastrophe loss on new business, create notional risks for modeling, pull bulk claims data from PDFs, and declutter frequent and immaterial vendor emails for multiple users.
- Taught frequent Python and R trainings across teams, as well as led Kemper's 2021 & 2022 Advent of Code competition.

Earnix – Newton, MA **Jun 2020 to Feb 2021**

Professional Services Consultant, Americas - Insurance

- Demonstrated Earnix's premier product, Price-It, with in-depth presentations to insurance management teams across lines of business during pre-sales.
- Served as workstream lead for Professional Services concerning software implementation design for Earnix's largest customer to date.
- Designed and presented the first US personal and commercial auto demonstrations of Earnix's new Personalize-It product.
- Authored software Implementation Plan template for US customers.
- Ran software evaluations using potential client insurance data. Evaluations were done over multiple weeks.
- Built predictive attrition model with client data to showcase software capabilities.
- Automated internal Price-It software data and model build using Python, saving over an hour on each software evaluation preparation.
- Developed ROI calculator using R Shiny to assist sales team presentations.

Aon Benfield – Chicago, IL **Jan 2018 to Jun 2020**

Senior Actuarial Analyst, Predictive Analytics

- Produced hurricane and other wind underwriting guidance as part of Aon's Cat Score team.
- Modeled, evaluated, and strengthened the Cat Score notional grid for the AIR, IF, and RMS models. This resulted in corrections to several long-standing issues in the notional grids, as well as a saved biannual refresh project previously owned by three co-workers.
- Formalized, automated, and implemented department procedure for Cat Score execution by Aon's catastrophe modelers. Previous errors caused client losses in excess of $10m. No losses or errors were reported for multiple years after implementation.
- Lead significant model testing and formalized department procedure (modeling and reinsurance allocation) of Aon's internal catastrophe model, Impact Forecasting. This led to an extended opportunity to work half-time with the Impact Forecasting team to prepare for their first model submission to the Florida Commission on Hurricane Loss Projection Methodology.
- Created hurricane and flood rating plans using GLMs in R, coupled with Tableau dashboards
- Instructed multi-day Fundamentals of Reinsurance training course for clients and Aon employees, including: Overview, Excess of Loss, and Quota Share.
- Evaluated client misuse of secondary modifiers for catastrophe modeling using k-medoids in R
- Managed Catastrophe Management SharePoint team, administering several large internal SharePoint sites. Other global teams frequently requested similar SharePoint builds.

GEICO – Chevy Chase, MD **Jan 2017 to Jan 2018**

Actuarial Assistant, Pricing

- Constructed rate indications and proposed rate changes in 200+ person meetings as part of GEICO's pricing department.
- Produced automobile and umbrella rate filing packages for Southeastern states. Discovered long-standing hole in nationwide umbrella rating plan that allowed for large policies with premiums of $5.
- Designed a k-means solution to territory grouping using Excel Solver.
- Discovered and assisted in correction of multiple major and minor bugs in data and code, including those found in GEICO's execution of IBM Watson.
- Provided catastrophe modeling recommendations to the Florida and Texas teams.
- Managed the Pricing SharePoint site.

Aon Benfield – Chicago, IL **Jun 2015 to Jan 2017**

Senior Catastrophe Analyst, Catastrophe Modeling

- Modeled losses and produced catastrophe loss allocations for personal, commercial, and automobile exposures using RMS RiskLink and AIR Touchstone/Catrader.
- Created comprehensive modeling analytics presentations for clients using SQL, Excel, and PowerPoint.
- Developed office-wide Excel/VBA solutions to increase efficiency and provide creative data visualizations.
- Managed and redesigned the SharePoint site for the US catastrophe modeling department as SharePoint team leader.

Small Business Development Center – Jacksonville, FL **Aug 2010 to Jun 2015**

Business Consultant

- Developed Excel/VBA tool and video manual to assist international trade consultants in foreign market selection using relevant data. Received the state-wide Innovative Service and Best Practice of the Year Award and mentioned by name in the US Congressional Record by Congressman Ander Crenshaw.
- Consulted with nearly 500 small businesses focusing on: financial analysis, website development, internet marketing, pricing strategies, and financial statement projections.
- Created the state standard for financial analysis and projections, with accompanying presentations.
- Developed and presented dozens of multi-hour business courses to current and prospective business owners.
- Race Director of the River City Mentor Walk. Event adopted from sister SBDC, pairing experienced and new business owners for a 5k walk.
- Taught graduate and undergraduate business classes as a guest lecturer and substitute teacher at the University of North Florida.
- Promoted from Graduate Assistant to Consultant upon graduation from the UNF MBA program.

EDUCATION

- Duke Master of Engineering in Artificial Intelligence (ETA Dec 2025)
  - Co-organizer and emcee of inaugural Generative AI Hackathon with OpenAI sponsorship with 150 presenters
  - Co-founder and president of AI Competition Club
- Duke Graduate Certificate in Robotics & Autonomy (ETA Dec 2025)
  - Member of the Duke Robotics Club building an autonomous underwater vehicle (submarine)
- Great Learning Course – Generative AI and NLP, 4 Months (2024)
  - Conversational AI with LangChain, LangChain assistants, prompt engineering, retrieval augmented generation (RAG), text classification, summarization and generation
- Stanford Professional Program Course - Natural Language Processing (2022)
- AI & Machine Learning Postgraduate Program – University of Texas at Austin (2021)
  - 1st of 31 teams in machine learning accuracy competition (72 hours, max team size of 3)
  - Project based application of machine learning using Python
  - Linear and logistic models, random forest, boosting, artificial neural network, machine vision, natural language processing, clustering
- MBA – University of North Florida, 3.8 GPA (2012)
  - ETS MBA Major Field Test (ranking test for MBA graduates) – Top 1% of MBA graduates nationwide

- BA – University of Florida, 3.6 GPA (2007)
    - AA – UF Honors Program (2006)
- Various CAS and The Institutes insurance exams covering risk, as well as Frequentist and Bayesian predictive modeling

TECHNICAL SKILLS

- Coding Languages, Dashboards, and Tools
    - Python, R, SQL including dynamic SQL using stored procedures, Rust (beginner), C++ (beginner), Databricks, Streamlit, Git, Fusion 360, Docker, ROS2 (beginner), Pytorch, Tensorflow, Linux, AWS
- Hardware
    - Raspberry Pi, Arduino, NVIDIA Jetson
- Microsoft Applications
    - Excel including Macros and VBA, Access, PowerPoint, SharePoint, Word

DUKE AI MASTER OF ENGINEERING COURSES

- Previous Courses
    - Sourcing Data for Analytics, Modeling Process and Algorithms, Deep Learning Applications, AI on Edge Devices (Independent Study), AI Implications, Operationalizing AI
- Current and Upcoming Courses
    - Introduction to Robotics, Robot Learning, Advanced Robotics, Linear System Theory, Management of High-Tech Industries, Capstone (working with a business on a targeted project)