

Yu (Carolyn) Cao

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SKILLS SUMMARY

- Solid knowledge of developing machine learning, deep learning, Convolutional Neural Network (CNN) and statistical models in Python, PyTorch, OpenCV, R and SAS Enterprise Miner, with experience of model applications in computer vision, natural language processing and risk management
- Proficient in C, C++, Python, Java, R, JavaScript, HTML, CSS, AJAX, Node.js, Tableau, SAS, SAS Enterprise Miner, SQL, VBA, demonstrated by accomplishments in modelling and programming projects during courses and work
- Excellent large customer data management and analysis skills in SAS, SQL, Excel and VBA, applied in model building process, standard dataset construction, risk strategy and reporting support
- Strong research and communication skills, proven through directed research experience in computer vision, presentations of machine learning modelling research and performance to senior management
- Familiar with Racket, Excel, Microsoft Word, PowerPoint, Outlook, and Access

EDUCATION

Master of Science in Computer Science - Scientists and Engineers, University of Southern California, Los Angeles, CA, September 2020-present

Bachelor of Mathematics, Honors Actuarial Science - Finance Option and Honors Statistics, University of Waterloo, Waterloo, ON, Canada, September 2015-December 2017

Bachelor of Science, Honors Actuarial Science, University of Western, London, ON, Canada, September 2013-April 2015

Awards: Four Year Continuing Admission Scholarships (80%+ average), University of Western, ON

Exams passed: Probability Exam, Financial Mathematics Exam of Society of Actuaries

PROFESSIONAL COURSES: Advanced Computer Vision, Applied Natural Language Processing, Deep Learning, Machine Learning, 3-D Graphics and Rendering, Robotics; R related: Applied and Generalized Linear Models, Computer Simulation of Complex Systems, Forecasting

WORK AND PROJECT EXPERIENCE

Advanced Computer Vision Course Project

University of Southern California, Los Angeles, CA, August 2021 – December 2021

- Developed, modified and tested various CNN models using Pytorch and Colab for image classification, semantic segmentation and object detection
- Performed computer vision tasks such as selective search, object detection with SIFT descriptors using OpenCV
- Conducted fine-tuning on CNN and Faster RCNN computer vision models and compared results

Machine Analytics Directed Research

University of Southern California, Los Angeles, CA, January 2021 – April 2021

- Built VGG and other CNN models in PyTorch for machine defect detection application, searched for sample image datasets to support the model development
- Investigated research papers in computer vision and explored applications of different machine learning models, summarized and presented research results to the group

Risk Analyst in Scoring, Credit Risk

PC Financial, Toronto, ON, Canada, April 2018 - April 2020

- Built logistic regression scorecard models in SAS Enterprise Miner for credit risk purpose. Promoted model implementation in TRIAD risk strategies
- Explored machine learning methods in SAS Enterprise Miner for model development and presented research results for team education
- Constructed standard scoring dataset in SAS, created data visualization in Tableau to validate and compare risk scores performance
- Performed accounts data extraction and analysis using SQL in SAS database, summarized data with tables and graphs in SAS and Excel for trend finding, segmentation and data preparation for modelling
- Automated regular reporting process by updating SQL calculations in SAS, pivot tables and graphs in Excel

Risk Analyst in Portfolio Management, Credit Risk

PC Financial, Toronto, ON, Canada May 2017 - August 2017

- Created a new TRIAD strategy to SAS conversion tool in VBA. Automated simulation in SAS allowed team to reduce strategy testing time from hours to minutes
- Utilized SAS simulation code from VBA conversion tool to make adjustment to TRIAD risk strategy trees, used simulation test results to support risk strategy development
- Collaborated with accounts data analysis in SAS database, performed graph and table summary in Excel to support risk strategy test
- Performed Champion and Challenger strategy Profit & Loss comparison, provided and presented suggestions to management for next steps