Andrew Benecchi

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EDUCATION

University of Georgia — **Athens, GA**
B.S. Statistics, B.B.A. Finance, Pricing and Valuation Emphasis, Jere Morehead Honors College — *August 2018-May 2023*

Honors:
- Outstanding Undergraduate Research Award
- Abraham Baldwin Scholarship
- 2020 Michael E. Merriman Scholarship
- Zell Miller Scholarship
- UGA National Merit Scholarship
- Mu Sigma Rho Statistics Honors Society

Elective Coursework:
- Applied Time Series Analysis
- Network Data and Graphical Models
- Mathematical Pricing of Options
- Fixed Income Securities Analysis
- Pattern Recognition
- Deep Learning
- Derivative Security Markets
- Applied Bayesian Statistics

APPLICATION SKILLS & CERTIFICATIONS

- R (4 years)
  Packages: Tidyverse, bookdown (R Markdown and gitbook), Shiny, JAGS, Quarto
- Python (3 years)
  Packages: NumPy, pandas, scikit-learn, OpenCV, TensorFlow, Keras, PyTorch, RAPIDS, Quarto
- Ubuntu / Debian / WSL (3 years)
- Docker (<1 year)
- AWS (<1 year)
- SQL (<1 year)
- MATLAB (1 year)
- Google Cloud Platform (< 1 year)
- C++ (<1 year)
- IBM Machine Learning Professional Certificate
- Tableau (1 year)
- Bloomberg Terminal (<1 year)
- Microsoft Azure (<1 year)
- Bloomberg Market Concepts

Skill categories: Deep Learning, Machine Learning, Data Analytics, Data Visualization, Monte Carlo Simulation, Financial Modeling, Underwriting

PROJECT EXPERIENCE

Face and Iris Datasets (FID 2019) — **University of Georgia**
Principal Investigator: Dr. Thirimachos Bourlai, Multispectral Imagery Lab (MILab) — *May 2022-Present*
- Developed dataset of simulated eye conditions using a generative adversarial network (GAN) on near-infrared and visible-spectrum iris images
- Augmented proprietary iris identification software to preprocess iris images for analysis by convolutional neural networks
- Assessed performance of open-source and proprietary semantic iris segmentation methods
- Identified inefficiencies within existing classification pipeline packages for future classification experiment acceleration
- Evaluated performance of different neural networks' image classification accuracies on face, periocular, and left and right binocular images
- Contributed towards forthcoming book chapter regarding testing of neural networks' classification task performances on novel dataset

STAT 5010/20: Undergraduate Statistical Capstone — **University of Georgia**
Capstone Sponsor: Dr. Marc van Iersel, Department of Horticulture — *November 2022-May 2023*
- Developed novel plant subsection early nutrient deficiency detection system
- Performed exploratory data analysis on multispectral image data taken from petunia plants
- Identified and remedied issues within code which affected data output fidelity
- Interfaced with Raspberry Pi hardware solution designed to provide affordable, open-source alternative to existing multispectral plant imaging hardware

STAT 4350: Applied Bayesian Statistics — **University of Georgia**
Bayesian Analysis of Hydroxyurea Therapy for Feline Erythrocytosis — *November-December 2022*
- Conducted Bayesian analysis on dose-dependent effect of hydroxyurea on cell volume reduction for primary and secondary feline erythrocytosis
- Performed model selection to determine influence of main and interaction effects on predictive power

ECSE 6410/6420: Pattern Recognition/Deep Learning — **University of Georgia**
Classification of Lymphoblasts Using Convolutional Neural Networks (CNNs) — *August 2021-May 2022*
- Developed scalable process for preprocessing, labeling, and augmenting image data to alleviate CNN rotational noninvariance and dataset imbalance
- Manually built linearly connected and branching convolutional neural networks
- Achieved 82.14% patient-level imbalanced test classification accuracy

MATH 6790: Mathematical Pricing of Options — **University of Georgia**
Monte Carlo Simulation and Black-Scholes-Merton Pricing of Options — *April-May 2022*
- Simulated stock movement with geometric Brownian motion
- Analyzed evolution of distributions of call and put options' prices, time and intrinsic values, and Greeks

STAT 4270: Network Data and Graphical Models — **University of Georgia**
Classification of Fake News Headlines Using Character-Level Convolutional Neural Networks — *December 2021*
- Embedded individual characters as features when representing strings as time series to minimize necessary preprocessing and maximize flexibility
- Built, trained, and evaluated convolutional neural networks with different input character set and message length constraints
- Achieved 93.1% accuracy in distinguishing between Reuters headlines and headlines from various fake news sources

2021 UGA Data Science Competition — **University of Georgia**
Prediction of Credit Card Default Risk — *March-April 2021*
- Evaluated performance of logistic regression, random forests, neural networks, and gradient-boosted trees on imbalanced default risk classification task

STAT 4365: Modern Statistical Programming — **University of Georgia**
Mapping the 2020 US Presidential Election Results — *December 2020*
- Built geospatial maps to visualize 2020 US Presidential election results by state

STAT 4280: Applied Time Series Analysis — **University of Georgia**
Time Series Analysis of Feather River (California) Flow Data, 10/1902-09/1961 — *November-December 2020*
- Compared ARIMA, locally weighted least-squares, and exponential triple-smoothed models, evaluated on prediction error over varying forecast horizons
- Evaluated variance of residuals for autocorrelation to detect seasonal ARCH effects

WORK EXPERIENCE

University of Georgia Department of Horticulture   **Athens, GA**
Undergraduate Research Assistant   *January 2023-Present*
- Developer of camera operation and image analysis software for a novel open-source multispectral plant imaging device

University of Georgia Multispectral Imagery Lab (MILab)   **Athens, GA**
Undergraduate Research Assistant   *May 2022-Present*
- Sped up iris matching by 8x by modifying and parallelizing existing C++ software solutions to accelerate iris enrollment, segmentation, and matching
- Automated dataset reorganization processes to process large volumes of data more efficiently

33 Holdings   **Atlanta, GA**
Private Equity Analyst Intern   *March-August 2021*
- Conceptualized The Point, a forthcoming 5.3-acre, 210-unit mixed-use development site in Rome, GA, leveraging independent research on small-metro mixed-use developments, generational consumption preferences, and the metro area's economic, education, and housing market trends
- Automated information collection and cleaning by building web scraping and data cleaning tools in R
- Developed a queryable relational database of residential portfolios with R and Google Sheets APIs to generate leads for Acquisitions
- Advised Acquisitions department on property prospecting solutions to better leverage data and geospatial analytics
- Underwrote and estimated cash-on-cash returns of over 100 single-family residences offered to Acquisitions using historical costs and comparables

HonTe Advisors   **Remote Work**
Quantitative Analyst Intern   *June-August 2020*
- Evaluated performance of a convolutional neural network's foreign exchange futures positions against baseline using Excel

LEADERSHIP EXPERIENCE

Phi Kappa Psi Georgia Alpha Chapter   **Athens, GA**
Brotherhood Chair   *January-May 2023*
- Led organization of brotherhood-centered events and out-of-town trips; managed logistics for and acquisition of internal event-related inventories

Philanthropy Chairman   *November 2020-December 2022*
- Organized joint service event with Delta Phi Epsilon sorority, assembling and delivering over $2000 worth of backpacks and winter supplies
- Launched Phi Kappa Psi Week of Service with TBP-ATH, providing coffee, clothing, meals, and essential medical supplies to homeless residents of Athens; led chapter members in planning and logistics for events; led leadership retreat sessions
- Oversaw and directed disbursements for largest philanthropy budgets in chapter history: donated more than 100 lb. of meat per semester to TBP-ATH weekly Saturday Meals; organized Phi Kappa Psi-run Saturday Meals and backpack packings

Risk Management Chairman   *January-December 2020*
- Reduced annual chapter insurance costs by $800 by hosting monthly risk management talks

Messenger   *January-December 2020*
- Managed chapter calendar, rosters of Listserv email group, and event group messages; resolved house mail issues by upgrading physical infrastructure

Philanthropy Committee   *September 2019-May 2023*
- Successfully lobbied Governing Committee for largest philanthropy budgets in chapter history

The Backpack Project of Athens (TBP-ATH)   **Athens, GA**
Greek Life Outreach Coordinator   *January 2021-May 2022*
- Organized event between IFC and The Backpack Project Athens (TBP-ATH) to fill backpacks with supplies for 50% of Athens' homeless population
- Promoted TBP-ATH within Greek life, resulting in new philanthropic relationships with IFC, multiple fraternities, and sororities

Street Outreach Team   *January-December 2021*
- Lead driver for weekly Saturday Meals delivery routes; provided critical logistical support for events

Community Engagement Committee   *August 2019-December 2022*
- Recruited new members among peers during ten-fold membership growth stage

UGA Statistics Club   **Athens, GA**
Secretary   *January-December 2021*
- Organized a guest lecture on COVID-19 modeling by Dr. John Drake of UGA's Center for the Epidemiology of Infectious Diseases