ELDIN ŠAHBAZ

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SUMMARY

Accomplished data scientist with more than three years of progressive professional experience in a multinational company. Proven ability to plan and lead projects, design experiments, analyze time series and signals, conduct algorithmic research and development in artificial intelligence and machine learning, and communicate insights to stakeholders. Applied expertise in modeling complex chemical processes via chromatography and mass spectrometry data. Successfully improved mass spectrometry signal quality — reducing error by 21%.

EDUCATION

Syracuse University *May 2021*
Non-Matriculated Graduate ◇ Mathematics

Syracuse University *May 2018*
Master of Science ◇ Computer Science

Syracuse University *May 2017*
Bachelor of Science ◇ Computer Science Summa Cum Laude

PROFESSIONAL EXPERIENCE

Research & Development Engineer June 2018 - Present
INFICON *Syracuse, New York*

· Reported on data science initiatives directly to the Senior Director of Development for Intelligent Sensor Solutions.
· Investigated and applied expertise to mass spectrometry sensor data for system and manufacturing processes.
· Conducted global presentations and counseled R&D teams — facilitating literature searches and technical reviews.
· Supported product development efforts — conducting basic research and establishing performance benchmarks.
· Lead and planned data science initiatives in a cross-functional environment — completing 10 studies and projects.
· Collaborated with stakeholders to elucidate research objectives and directions from high-level problem statements.
· Coordinated with physical scientists to integrate domain expertise into the experiments and predictive models.
· Interfaced with software engineers to facilitate migrating algorithmic research and findings to existing technologies.
· Audited system performance via simulation studies — covering 58% of chemical detectors and gas analyzers.
· Devised a mass spectrometry A/B model test — quantifying a 56% difference between legacy model test results.
· Improved mass spectrometry sensor performance and signal quality with a 21% reduction in estimation error.
· Developing parameter optimization techniques for quadrupole mass filters — projecting ~$500k annual savings.

Software Engineer June 2015 - September 2015
Self-Employed *Syracuse, New York*

· Operated as an independent sub-contractor on development projects.
· Lead content management system development for a local and state government.
· Restructured, enhanced, and developed content management system processes for a Forbes Global 2000 company.

ACADEMIC APPOINTMENTS

Research Experience for Undergraduates (REU) June 2017 - August 2017
Syracuse University ◇ Data Lab *Syracuse, New York*

· Conducted research under the supervision of Dr. Reza Zafarani (Electrical Engineering and Computer Science).
· Formulated a repeated measures experiment — querying structured and unstructured social media content.
· Modeled expected content attention — minimizing dimensionality while maximizing the cross-validation score.

Undergraduate Research Assistant August 2014 - May 2015
Syracuse University ◇ The Hosein Research Group *Syracuse, New York*

· Conducted research under the supervision of Dr. Ian Hosein (Biomedical and Chemical Engineering).

· Awarded the Dean's Leadership Grant in support of ambitious undergraduate research endeavors.
· Utilized wave propagation models to quantify solar cell energy efficiency and inform of optimal optical coatings.

RESEARCH

Mass Spectrometry DSP Algorithm
INFICON

· Surveyed and documented legacy mathematical DSP models — establishing baseline performance benchmarks.
· Composed a randomized controlled experiment to A/B test DSP model developments against legacy systems.
· Deduced and vetted theories regarding casual relationships among variables — deriving statistical ML models.
· Improved mass spectrometry sensor performance and signal quality with a 21% reduction in estimation error.
· Presented signal processing research and results at the company-wide INFICON Data Analytics Summit.

Cryptocurrency Analysis *Time Series Modeling and Analysis (MAS 777)*
Syracuse University

· Designed a study with team members to elucidate interrelationships among core cryptocurrencies on the market.
· Identified cryptocurrency pairs of interest via non-parametric correlation analysis and linear regression.
· Surveyed variables of interest — testing for unit roots and cointegration; visualizing ACF, PACF, and CCF plots.
· Assessed ARIMAX and VECM model fits via AIC estimates, BIC estimates, and residual analysis.
· Interpreted the statistical models, documented relevant findings, and presented this study's results.

Neural Text Summarization *Natural Language Processing (CIS 668)*
Syracuse University

· Lead a cross-functional team of five in investigating extractive and abstractive text summarization techniques.
· Implemented the abstractive text summarization technique using a deep recurrent neural network (RNN).
· Presented extractive and abstractive text summarization with team members at the iSchool poster session.

Capstone Project *Software Specification and Design (CIS 453)/Software Implementation (CIS 454)*
Syracuse University

· Lead and managed a team of five from SRS formulation to application development.
· Supported development, conducted weekly meetings, performed code reviews, and presented progress reports.
· Awarded best computer science capstone at the Engineering and Computer Science (ECS) open house.

PRESENTATIONS

Data Science for the Modular Mass Spectrometer November 2020
INFICON Data Analytics Summit

Get Started with Machine Learning and AI Today! November 2020
INFICON Data Analytics Summit

Approaches to Automatic Text Summarization April 2018
Syracuse University iSchool Poster Session

Characterizing Popularity Growth of YouTube Videos August 2017
EECS Summer REU Seminar

Capstone Project April 2017
Engineering & Computer Science Open House

HONORS & AWARDS

Tuition Assistance Award February 2021
INFICON

Graduate Merit Scholarship August 2017 - May 2018
Syracuse University

Summa Cum Laude May 2017
Syracuse University

The Warren Semon Prize May 2017
Syracuse University

Dean's Leadership Grant September 2014
Syracuse University

Dean's List August 2014 - May 2017
Syracuse University

The Founder's Scholarship August 2014 - May 2017
Syracuse University

PROFESSIONAL DEVELOPMENT

Linux Kernel Internals and Development (LFD420) December 2019
The Linux Foundation

Machine Learning Workshop June 2019
INFICON

Embedded Linux Development with Yocto Project (LFD460) June 2018
The Linux Foundation

SKILLS & COMPETENCIES

Programming Languages	Python, MATLAB, SQL, C++
Software & Tools	PyTorch, Scikit-learn, Statsmodels, Pandas, SciPy, NumPy, Matplotlib, Linux, Git
Competency Areas	AI, Deep Learning, Machine Learning, Statistical Learning, Linear & Nonlinear Modeling, Regression, Classification, Statistics, Probability, Time Series Analysis, Statistical Signal Processing, Data Analysis, Data Mining, Data Visualization
Soft Skills	Communication, Teamwork, Decision Making, Project Planning, Time Management
Spoken Languages	English, Bosnian, Croatian