

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 Non-Matriculated Graduate ♦ Mathematics	<i>May 2021</i>
Syracuse University Master of Science ♦ Computer Science	<i>May 2018</i>
Syracuse University Bachelor of Science ♦ Computer Science	<i>May 2017</i> Summa Cum Laude

PROFESSIONAL EXPERIENCE

Research & Development Engineer <i>INFICON</i>	June 2018 - Present <i>Syracuse, New York</i>
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- Reported on data science initiatives directly to the Senior Director of Development for Intelligent Sensor Solutions.
- Conducted global presentations and counseled R&D teams — facilitating literature searches and technical reviews.
- Collaborated with stakeholders to elucidate research objectives and directions from high-level problem statements.
- Supported product development efforts — conducting basic research and establishing performance benchmarks.
- Interfaced with software engineers to facilitate migrating algorithmic research and findings to existing technologies.
- Lead and planned data science initiatives in a cross-functional environment — completing 10 studies and projects.
- 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 <i>Self-Employed</i>	June 2015 - September 2015 <i>Syracuse, New York</i>
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- 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) <i>Syracuse University ♦ Data Lab</i>	June 2017 - August 2017 <i>Syracuse, New York</i>
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- 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 <i>Syracuse University ♦ The Hosein Research Group</i>	August 2014 - May 2015 <i>Syracuse, New York</i>
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- 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

Syracuse University

Time Series Modeling and Analysis (MAS 777)

- 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

Syracuse University

Natural Language Processing (CIS 668)

- 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

Syracuse University

Software Specification and Design (CIS 453)/Software Implementation (CIS 454)

- 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

INFICON Data Analytics Summit

November 2020

Get Started with Machine Learning and AI Today!

INFICON Data Analytics Summit

November 2020

Approaches to Automatic Text Summarization

Syracuse University iSchool Poster Session

April 2018

Characterizing Popularity Growth of YouTube Videos

EECS Summer REU Seminar

August 2017

Capstone Project

Engineering & Computer Science Open House

April 2017

HONORS & AWARDS

Tuition Assistance Award

INFICON

February 2021

Graduate Merit Scholarship

Syracuse University

August 2017 - May 2018

Summa Cum Laude

Syracuse University

May 2017

The Warren Semon Prize

Syracuse University

May 2017

Dean's Leadership Grant
Syracuse University

September 2014

Dean's List
Syracuse University

August 2014 - May 2017

The Founder's Scholarship
Syracuse University

August 2014 - May 2017

PROFESSIONAL DEVELOPMENT

Linux Kernel Internals and Development (LFD420)
The Linux Foundation

December 2019

Machine Learning Workshop
INFICON

June 2019

Embedded Linux Platform Development with Yocto Project (LFD460)
The Linux Foundation

June 2018

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