BRUNO JERKOVIC

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PROFESSIONAL SUMMARY

As a data enthusiast with a **Master's in Computing Science** and nearing the completion of a second **Master's in Artificial Intelligence**, I bring extensive expertise in applying novel **data science** principles and **data analytics** best practices across diverse use cases. My experience in a range of programming languages, especially **Python** and **SQL**, equips me with the flexibility to seamlessly adapt to various technological stacks and environments. This blend of **technical skills**, coupled with **effective communication** and a proactive **problem-solving** approach empowers me to drive impactful outcomes in data-centric roles.

SKILLS

- **Python:** Data science libraries (PyTorch, Selenium, scrapy, scikit-learn, SciPy, NumPy, matplotlib, pandas, …)
- **Database management:** SQL, NoSQL (MongoDB)
- **MATLAB, R**
- **Software development:** Developed applications on platforms (mobile, frontend, backend, desktop, …)
- **Other:** Anaconda, Git, Docker, GCP (Buckets, Vertex AI, Big Query, VMs), PowerBI

EXPERIENCE

DATA SCIENCE INTERN — Jun 2023 – Present

VonWood, Amsterdam
Used: price estimation, machine learning, sklearn, XGBoost, Google Cloud Computing Platform – Vertex AI, Docker

- Developed and deployed an end-to-end custom sklearn pipeline for product price estimation to help users with placing bids, accurately predicting 88% of the prices
- Improved the pipeline with additional feature engineering, scraping data, and creating custom outlier detection to increase the accuracy further
- Currently performing research for Artificial Intelligence Master thesis
  Title: *Deep Learning Recommendation Model for Index Price Feature Selection*
  Introduced an innovative novel filter-based deep learning model to quickly select features and enhance the efficiency of the price estimation model during online retraining by 4 times.

DATA SCIENCE STUDENT RESEARCH ASSISTANT — Aug 2021 – Mar 2023

Data Science Department at Radboud University, Nijmegen
Used: computer vision, deep learning, PyTorch

- Engaged in a collaborative multidisciplinary research project between Radboud University, Delft University and Glasgow University, where I contributed significantly as the second author on one journal and two conference papers
- Developed an unsupervised CNN for pixel-wise segmentation of image cracks in laminated composites, achieving 89% AUC, and implemented a pretrained ResNet model with 87% accuracy in classifying images of barely visible damage
- Created a prototypical CNN meta-learning model achieving similar accuracy as ResNet with 50% less training time on the same task

EXCELLENCE FELLOW – MASTER THESIS — Mar 2022 – Sep 2022

European Laboratory for Learning and Intelligent Systems (ELLIS), Nijmegen
Used: financial forecasting, deep learning, PyTorch, R

- Performed research for Computing Science Master thesis
  Title: *Connectivity Estimation of Financial Time Series Using Deep Learning Models*
  Performed a detailed comparison of the properties of existing and introduced a novel deep learning model for connectivity estimation on real-world stock market data and the synthetic datasets (generated from vector autoregressive model and stochastic volatility model) to find a model successfully recognizing more than 85% of interdependencies.

SOFTWARE DEVELOPER **Jul 2019 – Dec 2019**
Ericsson Nikola Tesla, Zagreb
Used: JavaScript, C#, Unity

- Contributed to the development of a cross-platform Web and Microsoft HoloLens app for server room management, incorporating path-finding and gesture-based color signaling features for enhanced user navigation and interaction

EDUCATION

MSc in Artificial Intelligence **Sep 2020 – Mar 2024 (estimated)**
Radboud University, Nijmegen, the Netherlands
Current GPA (without thesis): 8.0
Notable projects: Search engine for COVID research papers, Desktop application for comparing meta-heuristic search algorithms

MSc in Computing Science (spec. Data Science) **Sep 2020 – Apr 2023**
Radboud University, Nijmegen, the Netherlands
Notable projects: Sentiment analysis of Tweets on wearing masks in public, Comparison of double-dueling DQN and vanilla DQN

BSc in Computer Science **Sep 2017 – Jun 2020**
University of Zagreb, Zagreb, Croatia
***Bachelor Thesis**: Data Augmentation Methods for Cardiac Images (enhanced image augmentations using GANs)*

PUBLICATIONS

***Barely visible impact damage detection in composite structures using deep learning networks with varying complexities**,* Sep 2023
A. Tabatabaeian, **B. Jerkovic**, P. Harrison, E. Marchiori, M. Fotouhi
Journal: Composites Part B: Engineering

- Impact factor: 13.1, acceptance rate: 10%

***Detection and localization of barely visible impact damage in fiber-enforced polymer composites using a supervised deep learning algorithm**,* Jun 2023
A. Tabatabaeian, **B. Jerkovic**, F. Camargo, L. Echer, E. Marchiori, M. Fotouhi
Conference: 11th International Conference on FRP Composites in Civil Engineering

- Paper was highlighted during the opening ceremony as the most downloaded paper from the conference

***Data-driven structural health monitoring in laminated composite structures: characterization of impact damage**,* Aug 2022
A. Tabatabaeian, **B. Jerkovic**, E. Marchiori, M. Fotouhi
Conference: 6th Brazilian Conference on Composite Materials

NOTABLE ACHIEVEMENTS

ELLIS Certificate **2022**
Awarded in recognition for the completion of successful research practices during the ELLIS Excellence Fellowship

Swift iOS Certificate **2019**
Certificate awarded by company Five (Zagreb) for the successful creation of the iOS course planner app

Scholarships **2017 – 2022**
Received BSc scholarship for high-achieving STEM students and MSc Croatian scholarship for high-achieving students

High-School National Finals Placements **2017**
Placed in the top 0.45% in Mathematics and top 0.43% in Physics exams taken by all Croatian High School graduates

LANGUAGES AND INTERESTS

Croatian (native), English (fluent), Dutch (intermediate)
Tennis, water-polo
Member of Mensa, the High IQ Society