Davit Soselia

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github.com/dsoselia

SKILLS

Programming and Scripting Languages: (Proficient) Python, C++, SQL; (Familiar) Swift, Java, c#, JavaScript
Frameworks: Pytorch, TensorFlow, Keras, scikit-learn, openCV, Spark, CoreML, FastAPI.
Platforms&Tools: Hadhoop, Spark, Git, Slurm, AWS, Docker, Kubernetes, Jenkins, CircleCI, Azure, Piper.

EDUCATION

2022 - 2024 **University of Maryland, College Park, Maryland**
M.S. Computer Science

2015 - 2019 **San Diego State University, San Diego, California**
B.S. Computer Engineering
GPA: 4.0/4.0

WORK EXPERIENCE

Sept 2022 – Dec 2022 **Graduate Teaching Assistant**
University of Maryland, College Park, Maryland
- Conduct lab sessions for students enrolled in CMSC216, covering a range of computer systems topics including MIPS assembly, dynamic memory management, process control, and multithreading.

May 2022 – Aug 2022 **Consultant**
CodeMill (Google assignment), Stockholm, Sweden
- Prepared machine learning models for production.
- Evaluated non-intrusive deep-learning-based speech quality metrics for Google Meet.
- Led crowdsourcing efforts that expanded labeled dataset and lead to improved performance.

June 2020 – May 2022 **Machine Learning Engineer**
ARKUS AI, Stockholm, Sweden
- Built a chromosome segmentation pipeline using OpenCV for rough and U-net for fine segmentation, significantly speeding up the karyotyping process.
- Improved the accuracy of the hand-drawn pedigree extraction system using YOLO v4 in PyTorch.
- Built pipelines for data versioning, model training and deployment in AWS.
- Coordinated data collection of few hundred thousand samples and bootstrapped annotation using MTurk.

April 2020 – June 2022 **Research Engineer (part-time)**
KTH Royal Institute of Technology, Stockholm, Sweden
- Movability Lab – Developed a Python library for Lower-limb Joint Torque Prediction from EMG time-series data in TensorFlow.
- Developed iOS application in Swift to record joint angles using ARKit and simple regression model.
- Worked on finding optimal sensor locations through DGNs under Dr. Azizpour at RPL. Trained masked autoencoder networks, using Gumbel-Softmax instead of random sampling to learn the distribution of preferred samples.
- Sped up inference of a robot arm object orientation detection module by 230% by using TensorRT and optimizing OpenCV pipeline in C++.

Aug 2018 – April 2020 **Software Engineer, Machine Learning**
AIRO, Tbilisi, Georgia
- Work with multiple clients in Georgia and the EU as a consultant, the largest project with TBC Insurance.
- Develop classifiers for automating parts of the visual evaluation of the car insurance process, including car angle and scratch damage detection.

May 2018 – July 2020 **Summer Research Intern**
San Diego State University, San Diego, California
- Implemented RNN, GBT, RF, BNN fall detection classification using TensorFlow and scikit-learn in Python and trained on IMU sensor data.
- Conducted feature importance analysis for identifying the optimal sensor locations on the body. Carried out reliability analysis. See the paper (Paolini, 2019) for details.

Aug 2017 – Jan 2019 **Undergraduate Teaching Assistant**
San Diego State University, San Diego, California
- Calculus II, Linear Algebra, Computer Engineering 160, Computer Engineering 270

Feb 2016 – May 2017 **Junior Application Developer**
National Assessment and Examinations Centre, Tbilisi, Georgia
- Led a team of interns to design and develop an exam preparation app for iOS and Android, with over 20,000 active users.
- Developed the iOS version of the app using Objective-C.
- Set up database and API for storing and retrieving content updates for the application.

RESEARCH

Journals, Conferences, and Workshops

L. Zhang, **D.Soselia** , R. Wang (Mar, 2022), Lower-limb Joint Torque Prediction using LSTM Neural Networks and Transfer Learning, IEEE Transactions on Neural Systems and Rehabilitation Engineering.

C. Paolini, **D.Soselia**, H. Baweja, M.Sarkar (Dec, 2019), Optimal Location for Fall Detection Edge Inferencing, IEEE Globecom2019

D. Soselia, L. Shugliashvili, I. Koberidze, S.Amashukeli, S. Jijavadze, G. Chelidze (December, 2018), Freezing Networks: Weight Preservation Procedure for Continual Learning, *NeurIPS 18 Workshop on Continual Learning*.

D. Soselia, M. Tsintsadze, L. Shugliashvili, I. Koberidze, S.Amashukeli, S. Jijavadze (November, 2018), On Georgian Handwritten Character Recognition, *IFAC-PapersOnLine 51.30 (2018): 161-165*.

AWARDS

Scholarships and project funding

2021 – Shota Rustaveli National Science Foundation of Georgia funding for Georgian Language Processing API
2020 – KTH Innovation funding for FinSentim project
2019 – Swedish Institute Scholarship for studies at KTH
2018 – SDSU Summer Research Scholarship
2018 – Prototyping and travel grants to present AIPen project at Golden-Bytes from SDSU
2015 – Millennium Challenge Corporation SDSU tuition Scholarship
2015 – Magticom Scholarship for the highest NAEC aptitude test scorer in Georgia