Nicholas Nikolov

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Experience

Stress Engineer, P.Eng | ILF Consulting Engineers **January 2020 – Present**

- Achieved ~100x reduction in runtime of stress analysis calculations by replacing Excel sheet with an automation script written in Python
    - Reduced project hours by integrating the script into an engineering team's workflow
- Led the stress analysis program of a key client providing ~15 projects annually
- Utilized first-principles thinking when proposing design improvements compliant with CSA Z662:19 and client specifications
- Conducted mechanical stress analysis of pipelines using AutoPIPE beam analysis software
- Summarized stress analysis methodology, results, and design mitigations in authenticated reports
- Site engineer for hydroelectric dam shutdown in Yellowknife, NT

Mechatronics Research Engineer | MEDAL Lab **May 2019 – December 2019**

- Developed a mechatronic smart-vise system for use in manufacturing
- Integrated custom circuit design into machining tools for cutting and clamping force measurement during milling operations (piezoelectric force sensor, strain gauge, accelerometer)
- Measured cutting and clamping forces during milling using LabVIEW and MATLAB
- Conducted thorough patent and literature reviews of smart machining systems to ensure a novel design
- Published results in the Procedia Manufacturing research journal and received 8 citations

Education

Schulich School of Engineering, University of Calgary **May 2024 (Expected)**
MEng Software Engineering, GPA: 4.0 / 4.0 Calgary, AB

Schulich School of Engineering, University of Calgary **May 2019**
BSc. Mechanical Engineering with Specialization in Mechatronics (Dean's List) Calgary, AB

Projects

Stress Results Automation: Python (NumPy, pandas)

- Developed a Python script to assist stress engineers in efficiently summarizing results from pipeline simulation software. Accepts a .csv file containing ~10,000,000 cells of stress data and generates a formatted summary for all relevant pipeline features
- Reduced calculation runtime from 360 seconds to 4 seconds

Publications

Nikolov, N. 2019, 'Development of a Vise with built-in Piezoelectric and Strain Gauge Sensors for Clamping and Cutting Force Measurements', North American Manufacturing Research Conference.

Skills & Certifications

- **Languages:** C++, Java, SQL, Python (NumPy, pandas, scikit-learn), LabVIEW, MATLAB
- **Frameworks:** Django, Spark
- **Developer Tools**: Eclipse, VS Code, Git / Github
- **Certifications**: AWS Certified Cloud Practitioner, Microsoft Azure Fundamentals
- **Communication**: Technical reports, Toastmasters public speaking training
- **Hardware**: Arduino, Oscilloscope, Piezoelectric force sensor, Strain gauge, Accelerometer