Oguzhan Dogru

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Highlight of Qualifications

- B.Sc. in Chemical Engineering and Ph.D. in Process Control with a high emphasis on AI-based automation.
- Over 5 years of experience with machine learning, optimization, reinforcement learning, computer vision, and modern control applications in Fortune 500 oil, oil sands, energy and automation companies.
- Analytical and creative thinking, complex problem-solving, excellent professional communication skills.

Work Experience

Research Assistant, University of Alberta, Edmonton, Alberta, Canada *Sept. 2018 - Present*

- Developed robust AI and control tools for multinational corporations, including:
  - Delivering a computer vision application to detect aggregate size in oil-sands tailings (work with **Spartan Controls**).
  - Delivering reinforcement learning-based safe PID controller tuning and optimization-based constrained PID controller algorithms via Python and tested them on DeltaV DCS (work with **Emerson Electric Co.**).
  - Implementing computer vision and sensor fusion applications (via Matlab) and mentoring and leading a software engineering student to develop a sensor fusion Windows service (via C# and .NET). These codesets are used in closed-loop control, improving product quality and reducing environmental footprint (work with **Imperial Oil Ltd.**).
  - Delivering Python codesets for Open Platform Communications and reinforcement learning-based controller tuning algorithms on 64- and 32-bit Windows OS (work with **Suncor Energy Inc.**).
- Designed ML and optimization models for state estimation, sensor fusion, and process control utilizing computer vision, supervised/unsupervised learning, and actor-critic reinforcement learning.
- Built and managed high-performing process control teams, hiring and training co-op students for NSERC, IRC, Alliance, and COSIA projects.
- Organized industrial workshops for NSERC, IRC, Alliance, and COSIA partners.
- Published more than ten applied research articles with various collaborators in top peer-reviewed journals and conferences in computer science and process control.

Research and Development Engineer, TUPRAS, Kocaeli, Turkey *Jul. 2017 - Jul. 2018*

- Modeled gas treatment plants to improve production efficiency, reducing carbon footprint & operational costs.
- Trained process engineers and operating personnel on hazardous gas treatment plants.
- Examined various downstream plants with abnormalities using HAZOP and Kaizen methods.

Intern, Cologne University of Applied Sciences, Cologne, Germany *Jul. 2016 - Sept. 2016*

- Researched physical and chemical properties of PET utilizing various instruments to analyze recycling efficiency.

Education

Ph.D., Process Control, University of Alberta, Edmonton, Canada *Sept. 2018 - Dec. 2022*

B.Sc., Chemical Engineering, Hacettepe University, Ankara, Turkey *Sept. 2012 - Jul. 2017*

Awards

- Two merit awards for academic excellence in chemical engineering and presenting our research at an industrial conference's reinforcement learning workshop, University of Alberta.
- Two merit awards for designing innovative & eco-friendly ethylene glycol and paper production plants, Hacettepe University.

Skills

Language/Simulators: Python, Matlab, Simulink, CHEMCAD, Maple, COMSOL.

Frameworks: Tensorflow, PyTorch, Scikit-learn, OpenCV, Scipy, Gym, Optuna, Matplotlib, NumPy.

Tools: Git & GitHub, ASPEN Plus & HYSYS, Tableau, Maple, Polymath, Minitab, GAMS, Cplex, MS Office, LaTeX, Adobe Premiere Pro.

IDEs: PyCharm, Jupyter Notebook, Google Colab. **OS**: Linux/Ubuntu, macOS, Windows.

Miscellaneous: Alberta Class-5 driver's license.

Volunteering

VP Finance, CMEGSA, University of Alberta, Edmonton, Canada *Sept. 2019 - Present*

Administrated the financial affairs of the Association in an efficient way. Ensured compliance with the economic policy of the university's GSA.

Reference

Provided upon request.