

Education

Ph.D. Physics, University of New South Wales Canberra (2014-2018)

M.Sc. Photonics, University of Applied Sciences Münster (2011-2013)

B.Sc. Engineering Physics, University of Applied Sciences Münster (2008-2011)

Work experience**Postdoctoral research associate, University of Wyoming, United States (2019-Current)**

Project: NASA-funded Artificially Intelligent Manufacturing of Flexible Electronics

Primary role:

I am the project lead to deploy state-of-the-art machine learning approaches to optimize the manufacturing process of flexible electronic circuits. I have a deep understanding in materials characterizations and discerning data quality obtained from multiple equipment. In writing grant proposals, I define the roadmaps for new projects following market needs as well as funding agency goals. Following the agile philosophy, I prioritize the tasks from multiple supervisors across different disciplines (data science, chemical engineering, and computational modelling) and communicate bi-monthly the project status to external stakeholders. I provide training, and delegate work to several graduate students (2 PhD, 4 Masters) and guide them towards their personal growth.

Secondary role:

- Author/maintainer of python packages and gitbook documentation
- Publish and present research at international conferences

Doctoral research fellow, University of New South Wales, Australia (2014-2018)

Project: DAAD Australia-Germany Joint Research Cooperation Scheme

I ran several highly critical experiments at national laboratories, about 2-3 times a year over a span of 3 years. The limited opportunities resulted in situations where handling complex technical problems under pressure are common. In that time, I gained deep knowledge about 2D materials for advanced semiconductor applications and developed complex data analytics and modelling using Python. My experimental data corroborated well with atomistic simulations that I ran at high performance computing facilities. My project was an international effort between Australia, Germany and Korea, which relied on strong communication skills in both English and German.

Research assistant, Laser Center University of Applied Sciences Münster, Germany (2012-2014)

Project: German BMBF federal-funded optical technologies in innovative small and medium-sized enterprises, reference: 13N12282

I characterized and developed new laser systems as manufacturing tools for LIMO GmbH. I learnt and applied a statistical design of experiments to optimize efficiency of cutting stainless steel up to 6 mm. Progress were presented in bi-annual meetings with industrial partners. Additionally, I helped develop the automated system in laser processing semiconductor substrates for Rosen GmbH with an output of 3000 pieces a day. I finished tasks setup by project managers using Jira.

Skills / Software

Automation:

industrial control systems, data acquisition and analysis: python, R, labview
project management: Jira Kanban

Device Physics / Fabrication / Equipment

UHV chambers, vacuum pumps, clean room, LCR Meter, four-point probe, molecular beam epitaxy, chemical vapour deposition, gas chromatography, mass spectrometry, TEM, SEM, ellipsometer, UV-VIS, FT-IR spectrometry

AI and development:

Bayesian optimization, multi-fidelity modelling - python, R
database, devops – postgresSQL, SQLite, Docker, GitHub, Homebrew, CLI tools

Awards/Funding

Submitted

2021 Integrated Computational And Data Infrastructure DOE FOA-0002482
2021 Future Manufacturing, NSF 21-564
2020 Advanced Coal Processing Program, Department of Energy FOA-0002185

Funded

2020 \$50k School of Energy Resources RFP, Laramie
2019 \$750k Advanced Materials and Manufacturing, NASA 80NSSC20M0050

Past

2017 A\$20k InnovationACT, Canberra, Australia
2017 500EU Travel grant, BESSY, Berlin, Germany
2015 A\$25k Go8/DAAD Australia-Germany Joint Research Cooperation Scheme
2015 650EU Travel grant University of Applied Sciences Muenster, Germany
2014 A\$6k PhD Fellowship, Canberra, Australia

Additional Information

ML Certification from Stanford (Andrew Ng)
Fastai course on deep learning (Jeremy Howard)
Haskell Certification from Packt Publishing
Portfolio : www.hudwahab.com
GitHub : <https://github.com/hududed>
LinkedIn: <https://www.linkedin.com/in/hudwahab/>
Fluent in English, German and Malay
Full American/German driving licence
Able to work remotely and learn a new language, when necessary
Willing to travel 6-8 months per year
Green card in process (est. early 2021)

References

Prof. Patrick A. Johnson

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