Tony Arthur

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Summary

PhD in Chemical Engineering with expertise in computational modelling and hands-on laboratory experience, specializing in granulation, powder handling and characterization. Strong background in pharmaceutical formulation development and process optimization for drug delivery systems. Four years of proven teaching experience delivering engineering courses at undergraduate level with strong focus on practical applications and student engagement.

Education

University of Bradford **2020 -2024**
PhD Chemical and Process Engineering
Thesis Title: Simulation and Experiment of Twin-Screw Granulation for Pharmaceutical Applications

University of Leeds **2017 - 2018**
MSc. Energy and Environment
Research Title: Modelling of Annular Packed Bed

University of Mines and Technology **2011-2015**
BSc. Geomatics Engineering

Technical Skills

•CAD Expert	• Python/Scikit-learn	• DEM Modelling	• Process Development
• Quantitative Analysis	•Cloud Computing	• MATLAB	• Microsoft Suit
• Pharmaceutical R&D	• Bioprocess Simulation	• ANSYS CFD/ Star CCM+	• SOLIDWORKS
• Material Analysis	• Engineering Design	• gPROMS	• Computational Modelling
•Drug Delivery Systems Design	•Dissolution Testing	•Quality by Design (QbD)	•Pharmaceutical Formulation Development
•Biopharmaceutical Manufacturing	•Process Parameter Optimization	•Particle Size Analysis Aseptic	• Processing Fundamentals

Professional Experience

University of Bradford UK, Teaching Assistant – September 2020 – Present

- Led CAD laboratory sessions and mechanical engineering tutorials for undergraduate students
- Conducted practical demonstrations on engineering design principles and materials analysis
- Developed and delivered MINITAB and Aspen HYSYS lab sessions, integrating computer-aided engineering tools
- Mentored students in project work and provided academic support during office hours
- Created comprehensive teaching materials including lecture slides and lab instruction
- Evaluated student performance and provided constructive feedback
- Applied Quality by Design (QbD) principles in laboratory teaching to demonstrate pharmaceutical development applications

University of Bradford UK, Research – September 2020 – Present

- Utilized twin-screw granulation expertise to develop improved solid dosage form manufacturing processes
- Applied particle technology knowledge to design controlled-release formulation systems

- Optimized powder handling techniques for enhanced API stability during processing
- Conducted dissolution testing to evaluate performance of granulated pharmaceutical formulations
- Implemented Quality by Design principles to systematically optimize granulation parameters
- Developed computational models (DEM, CFD) for biological process optimization

Norpalm Ghana Ltd Ghana, Technical Assistant – September 2015-September 2020

- Supervised and managed a team of plant employees, ensuring safety, quality, and productivity.
- Organized and coordinated daily production activities, optimizing processes for efficiency.
- Upheld quality control standards, monitored process parameters, and resolved quality issues.
- Collaborated with the production team to optimize processes and improve plant efficiency.
- Ensured regular maintenance and repair of plant equipment.
- Maintained compliance with health and safety regulations.
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PUBLICATIONS

- Arthur, T. and Rahmanian, N. (2024a) Seeded granulation in twin-screw granulators: A DEM approach. Powder Technology, 120236. https://doi.org/10.1016/j.powtec.2024.120236
- Arthur, T. B. and Rahmanian, N. (2024b) Process Simulation of Twin-Screw Granulation: A Review. Pharmaceutics 16 (6), 706. https://doi.org/10.3390/pharmaceutics16060706
- Arthur, T. B., Sekyi, N. K. G. and Rahmanian, N. (2024) DEM simulation of a single screw granulator: The effect of liquid binder on granule properties. Chemical Engineering Research and Design 203, 233-242. https://doi.org/10.1016/j.cherd.2024.01.028
- Arthur, T. B., Sekyi, N. K. G., Rahmanian, N. and Pu, J. (2023-02) Process Simulation of Twin-Screw Granulator: Effect of Screw Configuration on Size Distribution. Chemical Engineering & Technology 46. https://doi.org/10.1002/ceat.202200539
- Arthur, T. B., Chauham, J. and Rahmanian, N. (2022) Process Simulation of Fluidized Bed Granulation: Effect of Process Parameters on Granule Size Distribution. Chemical Engineering Transaction 95. https://doi.org/10.3303/CET2295041
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CONFERENCES

- 9TH UK-China International Particle Technology Forum, Greenwich (August 2023) Oral Presentation: DEM Simulation of Twin-Screw Granulation: The Effect of Liquid Binder
- 10th International Granulation Workshop and Conference, Sheffield (June 2023) Oral Presentation: DEM Simulation of Single Screw Granulator: Effect of Liquid Binder Properties
- 26th International Congress of Chemical and Process Engineering, Prague (August 2022) Poster Presentation: Process Simulation of Twin-Screw Granulator: Effect of Screw Configuration on Size Distribution"
- 6th International Conference of Chemical and Process Engineering, Naples (June 2022) Oral Presentation: Process Simulation of Fluidized Bed Granulation: Effect of Process Parameters on Granule Size Distribution

HOBBIES

- Reading
- Shopping
- Watching Movies

Reference

- **Dr Nejat Rahmanian**

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- **Dr Jaan Pu**

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