Andrew C. Finkle, PhD

2-74 Hazelglen Drive, Kitchener, Ontario, N2M 2E3
andrew@andrewfinkle.com • 519-503-9660 • linkedin/afinkle

RELEVANT QUALIFICATIONS

Advanced Materials, Decentralized Manufacturing, 3D Printing

- Completed doctoral thesis in Chemical Engineering (Nanotechnology) at the University of Waterloo with a focus on using functional nanoparticles as bio-based reinforcements for green plastics. The use of nanoparticles provided improved mechanical properties and better processability in additive manufacturing and producing 3D printing filaments.
- Cofounded Structur3d Printing in 2014 with the mission of democratizing advanced manufacturing techniques available in research laboratories. Structur3d delivered several solutions to market with 2 flagship products: (1) The Discov3ry Complete – a 3D printer package enabling the printing of viscous materials like silicones and rubbers; and (2) The Inj3ctor – a desktop injection molder for silicones and rubbers which used 3D printed molds.
- Cofounded OpenLung.org in 2020 during the COVID-19 pandemic to develop plans for an open-source ventilator. This decentralized project grew to thousands of engineers and work-from-home contributors. Responsible for leading several engineering teams, moderating GitHub as a development platform for hardware engineering and development in the open. Accountable for leading several corporate collaborations with companies like Ford, Amazon, Altium and Solidworks.

WORK EXPERIENCE

Innovation Lead and NanoPaper Project Manager *March 2024 – Present*
Tangho Green Canada Inc. Waterloo, ON

- Leads development and scale-up of Tangho NanoPaper, a high-temperature cellulose-based substrate for flexible electronics, achieving high-performance benchmarks in tensile strength and thermal stability.
- Managed cross-functional R&D and commercialization pipeline, advancing Tangho NanoPaper from lab-scale fabrication to prototype integration with printed circuits using copper inks, and scale-up validated through pilot trials.
- Directed strategic partnerships with global leaders in flexible electronics, including University of Waterloo, Yamagata University, and Japan's Innovation Center for Organic Electronics (INOEL), enabling joint R&D, prototype benchmarking, and entry into Japanese and North American markets.
- Defined and executing a NanoPaper commercialization roadmap, including pilot-scale manufacturing and revenue generation, and long-term scale-up production and distribution.
- Presented Tangho NanoPaper at global industry events, including NanoTech Expo Tokyo 2025 and SPE Plastics in Electric & Autonomous Vehicles Conference 2024, securing early interest from electronics OEMs and positioning Tangho as a sustainability-driven substrate innovator.

Cofounder and Chief Technology Officer (CTO) *2013 – 2021*
Structur3d Printing Inc. Kitchener, ON

- Successfully launched a paste extruder for desktop 3D printers through a Kickstarter crowd-funding campaign raising $126,000 from over 500 backers.
- Responsible for: product design; product market fit; investor and customer relations; grant application writing; trade shows and sales; human and resource management; supply chain and manufacturing; shipping and logistics; troubleshooting and support.
- Structur3d Accelerator Participation: Communitech HYPERDRIVE in Kitchener, ON (*product focus*); HAX Boost in San Francisco, CA (*sales focus*); Techstars-Stanley Black & Decker in Hartford, CT (*advanced manufacturing focus*).
- Successfully fundraised our seed round from angel investors, incubators, OCE, & BCE and went on to sell over $1M in product.
- Directly managed product team of mechatronics/electrical/chemical/nanotechnology engineers; manufacturing and supply chain leads; industrial designers. Responsible for coordination of product from research, design, testing, manufacturing, through to product launch and support.

Laboratory Course Developer and Instructor *2010-2013*
Nanotechnology Engineering Department, University of Waterloo Waterloo, ON

- Two courses: Mechanical Characterization of Polymer Composites (2nd yr.); Synthesis and Characterization of Segmented Metal Nanowires (4th yr.).
- Responsible for: course development (content creation and maintenance); delivery (10hr/week); and student success (grading, tutoring, etc.).

Cellulose Nanocomposite Research Assistant, Dr. Leonardo Simon, University of Waterloo, *Waterloo, ON* *2009*
Aluminum and Magnesium Alloy Research Assistant, Dr. Shahrzad Esmaeili, University of Waterloo, *Waterloo, ON* *2009*
Quality Assurance Laboratory Technician, SC Johnson Ltd., *Brantford, ON* *2008*
Inorganic Nanoparticle Research Assistant, Xerox Research Centre of Canada (XRCC), *Mississauga, ON* *2007*
Clay-Polypropylene Nanocomposites Research Assistant, Dr. Leonardo Simon, University of Waterloo, *Waterloo, ON* *2007*
Plastic Film Slitter Operator, ExxonMobil Chemical Ltd., *Belleville, ON* *2006*

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EDUCATION

University of Waterloo *March 2020*
PhD of Applied Science (PhD)
Major: Chemical Engineering (Specialization in Nanotechnology)
- PhD Research Thesis: Cellulosic Nanocomposites for Advanced Manufacturing: An Exploration of Advanced Materials in Electrospinning and Additive Manufacturing; *available https://uwspace.uwaterloo.ca/handle/10012/15665*.
- Courses: Statistics in Engineering; Interfacial Phenomena; Polymer Science and Engineering: Nanocomposites.

University of Waterloo *Aug. 2011*
Master of Applied Science (MASc)
Major: Chemical Engineering (Specialization in Nanotechnology)
- MASc Research Thesis: Cellulose – Polycarbonate Nanocomposites: A novel automotive window alternative; *available https://uwspace.uwaterloo.ca/handle/10012/5884*.
- Courses: Self-Assembly Phenomena and Tools; NanoMechanics; Nanoscale Fabrication Tools; Cellulose Biosynthesis; Molecular Physics.

University of Waterloo *Apr. 2010*
Bachelor of Applied Science (BASc) with Distinction
Major: Nanotechnology Engineering (Co-op), Option in Management Sciences

LEADERSHIP / VOLUNTEER POSITIONS

Cofounder and Developer Operations – COVID-19 Inspired Open Source Ventilator, *OpenLung.org* *2020*
Business and Entrepreneurship Mentor, Various Companies, Communitech and Velocity, *Kitchener-Waterloo, ON* *2014-present*
Nanotechnology Engineering 4th Year Design Project - Entrepreneurial Award Sponsor, University of Waterloo *2013-2019*
Nanotechnology Engineering 4th Year Design Project - Judge, University of Waterloo *2011-2012*
3D Printing Education and Training, MakerClub for Kids, *Kitchener, ON* *2014-2016*
Fundamentals of University Teaching Course, University of Waterloo 2015
Intermural Slo-pitch Baseball Coach and Manager, University of Waterloo *2009-2012*

AWARDS / HONOURS / SKILLS

Editor's Choice Best of Show, New York City National MakerFaire, *Discov3ry Paste Extruder* *Sep. 2014*

Ontario Graduate Scholarship & Presidents Scholarship, University of Waterloo *2005, 2011, 2012, 2013*

Publications: The Journal of Science and Technology for Forest Products and Processes (J-FOR) *Jan. 2012*
American Chemical Society (ACS) National Meeting & Exposition *Apr. 2013*

Project Management: GitHub/Gitlab; SAP; Salesforce/HubSpot; MS Office; Google Business; Discord/Slack/Hipmunk; Zendesk; MailChimp; Discourse; Kickstarter/Backerkit; Shopify/Squarespace.

Computer Design: Trained Solidworks Professional; Autodesk 123D; Slicing/GCODE; Adobe Photoshop/Premiere/Lightroom; MATLAB; Maple.

References Available upon Request.