Austin B. Lawrence, MS, EIT

[redacted] *Pittsburgh, PA*

Robotic Systems Director

Accomplished engineering professional, well-grounded in cradle to grave life cycle development of electromechanical systems in autonomous environments. Classically trained mechanical engineer, extensive exposure to design process with emphasis on robotic and data-rich themes. Proud to be analytical, scientifically-minded, creative, documented, communicative, resourceful, and morally grounded. Professional experience in food, cogeneration, HVAC, construction, medical, automotive, entertainment, and academic industries. A worldly thinker with a relentless passion to solve meaningful problems of business and social significance.

Professional Experience

Co-founder and CTO, *RoBotany (dba Fifth Season)* *2016-2022*

- RoBotanist, bridged developmental topics between botany and automation to create deterministic outcomes of a biological manufacturing system
- Inventor, personally filed and first name listed of automatic growing environment patents to ensure Company's competitiveness and investability
- Principal system architect, modeled and conveyed process and material flows to development team while interpreting, managing, and meeting expectations of Company's business team
- Product owner, shepherded requirements and standardized lean DfX process across three major product generations of over 10 fully integrated pull-based subsystem SKUs
- Research director, facilitated the cross-disciplinary discovery process on matters concerning a green's optimal response to its physical environment and pitched new viable technology initiatives
- Head engineer, approved proposals and oversaw procurement of $30mm of capital, consisting of 1,400 tons ammonia refrigeration, 1.4MW microgrid, 3.0MW connected equipment, and 60,000 sqft warehouse
- Sustainability officer, formulated resource conservation KPIs, prompting $1mm/yr in reduction initiatives

Robotics Research Engineer, *Cornell University* *2016-2017*

- Programmed ROS environment for layman's operation of an industrial six-axis manipulator
- Arranged and conducted human-machine interaction trials with machines as a social mediator

Robotics Research Engineer, *Disney Research* *2015-2016*

- Produced three entertainment robots generally around themes of teleoperation, storytelling, and music
- Contributed scientifically in the manufacture and operation of soft machines as first author of IROS paper

Co-founder and CTO, *Future Tech Farm* *2012-2015*

- Lead hardware developer for scalable autonomous consumer hydroponic systems
- Transitioned discovery and MVP findings into a low-cost tabletop consumer product

R&D Engineer, *Morgan Olson* *2013-2014*

- Modeled transient heat transfer simulations for refrigerated mobile systems
- Modernized modular shelving design for a four-fold increase in cost to performance

R&D Co-op, *Rehabilitation Institute of Chicago* *2012-2013*

- Studied and nurtured lean design principles in pursuit of mass manufacturable wearable robots
- Conducted undergraduate research thesis on topic of power transmission within a petite myoelectric arm

Education

Master of Science in Robotics*, Northwestern University* *2014-2015*

- Foci: AI, mechatronics, embedded systems, computer vision, machine learning, manipulation

Bachelor of Science in Mechanical Engineering, *Kettering University* *2009-2013*

- Semester abroad at the Esslingen University of Applied Sciences, Germany

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Skills

Automation	**CAD**	**Programming**	**Data Science**
Robot Operating System	Solidworks	Python	Feature recognition
Home Assistant	AutoCAD	C++	Path planning
IFTTT	Revit	Javascript	Optimization / minimization
MQTT	Blender	Matlab	Cross validation
Controls	**Research**	**Project Management**	**Prototyping**
Raspberry Pi	Mendeley	Atlassian	Conventional machining
Arduino	Zettelkasten	OmniPlan	3D scanning
NodeMCU	Factorial experimentation	Microsoft Projects	Breadboarding
PIC	Scihub	Slack integrations	MVP validation
Systems	**Manufacturing**	**Energy**	**Construction**
Process modeling	Casting	Economization	Bidding
DFMEA	Thermoforming	Absorption chilling	Permitting
Requirements shepherding	Injection molding	Grid arbitrage	Contracting
Strategic architecting	Sheet metal	Combined heat and power	Commissioning

Publications

"US20190092567A1 – Apparatus and Method for Autonomous Agriculture Inventory Management", *USPTO* *2019*

"US20170339846A1 – Apparatus and Method for Autonomous Controlled Environment Agriculture", *USPTO* *2017*

"Robot Assisted Tower Construction – A Resource Distribution Task to Study Human-Robot Collaboration and Interaction with Groups of People", *cs.RO* *2017*

"Mechanical Implementation of a Variable-Stiffness Actuator for a Softly Strummed Ukulele", *IROS* *2016*

"Differential Roller Screw Efficiencies: Analytical and Physical Validation", *Kettering University* *2014*

Acknowledgements

"Fifth Season celebrates full activation of on-site microgrid", *The Business Journals* *2022*

"U.S. Agriculture Needs A 'Fifth Season'", *Forbes* *2020*

"This startup is building a massive indoor farm in a Rust Belt steel town", *Fast Company* *2019*

"Coolest College Startup", *Inc.* *2017*

Best Practicum Award, *Carnegie Mellon University* *2016*

Outstanding Research Thesis, *Kettering University* *2014*

Clean Energy Venture Challenge 2nd Place, *University of Michigan* *2013*

Credentials

Visual personal portfolio:	https://thingsmakingthings.com
Github:	https://github.com/ablarry91
LinkedIn:	https://www.linkedin.com/in/austinblawrence