John Cassel

an introduction

Value Proposition

Mission Statement

Discovery-driven domain design
and software engineering
of engineering design,
operation management,
or research support software
for stewarding
landscapes and infrastructure
by multiple criteria

How John Would Like to Help

John enjoys making **decision systems**
that can assure managers, planners, and designers
that they can take a **wider range of actions**
with confidence in **achieving favorable outcomes**
across a **broader range of criteria**
that are robust to a diverse range of conditions

How John Can Do This

John can build tools for stewarding landscape and infrastructure because he can apply

- analytical methods from engineering design, data science, and related fields
- design research processes aimed at discovering stakeholder needs
- software engineering patterns and practices
- specific domain experience in agriculture and bioinformatics
- broad domain and data modeling experience

Current Context

Role

I am proud to serve as a
Principal Software Engineer
at Regrow Agriculture

Qualifications

“I highly recommend John for any future employer. I worked with John for several years at Indigo, and know John to be an outstanding colleague on both the personal and the professional front. …”

“I have had the privilege of observing John's positive attitude, openness and general technical leadership first hand. …”

“… John’s friendly demeanor and dedication to fostering a positive culture truly set him apart. I highly recommend him for his technical prowess, systemic thinking, and ability to inspire those around him.”

“Working with John has been a highlight for me. In addition to having a breadth of technical knowledge and being an excellent problem-solver and systems architect, John consistently brings a positive attitude to challenging situations and helps to bring out the best in his colleagues. …”

“… John’s unique blend of technical expertise, strategic foresight, and commitment to environmental stewardship makes him a standout professional. …”

“… In conclusion, I don't think there's any hesitation in recommending John Cassel for future projects or collaborations. He has consistently demonstrated professionalism, dedication, and expertise, making him a highly respected and valuable team member. His positive impact on both the technical and interpersonal aspects of our projects makes him an outstanding professional.”

See recommendations at https://www.linkedin.com/in/john-cassel-6480502/ for more

Favorable Peer Review

Notable Achievements

- **As a Principal Software Engineer at Indigo Agriculture:**
  - guided multiple teams, multiple sources of data, and multiple sustainability programs towards adoption of an integrated schema

- **As a Research Programmer at Wolfram|Alpha:**
  - drove a cross-team effort for biological content expansion that helped win a major client
  - led introducing the biomolecular sequence vertical for the Wolfram Language

- **As a Systems Engineer at Agrible:**
  - co-created the main task processing system of the analysis backend
  - led the development of the primary representation and interface for farm activities

- **As a Software Engineer at Wolfram|Alpha:**
  - co-created the database backend, including database runtime, database deployment, curation tooling, production patching, and object/geospatial features

Highlight Moments

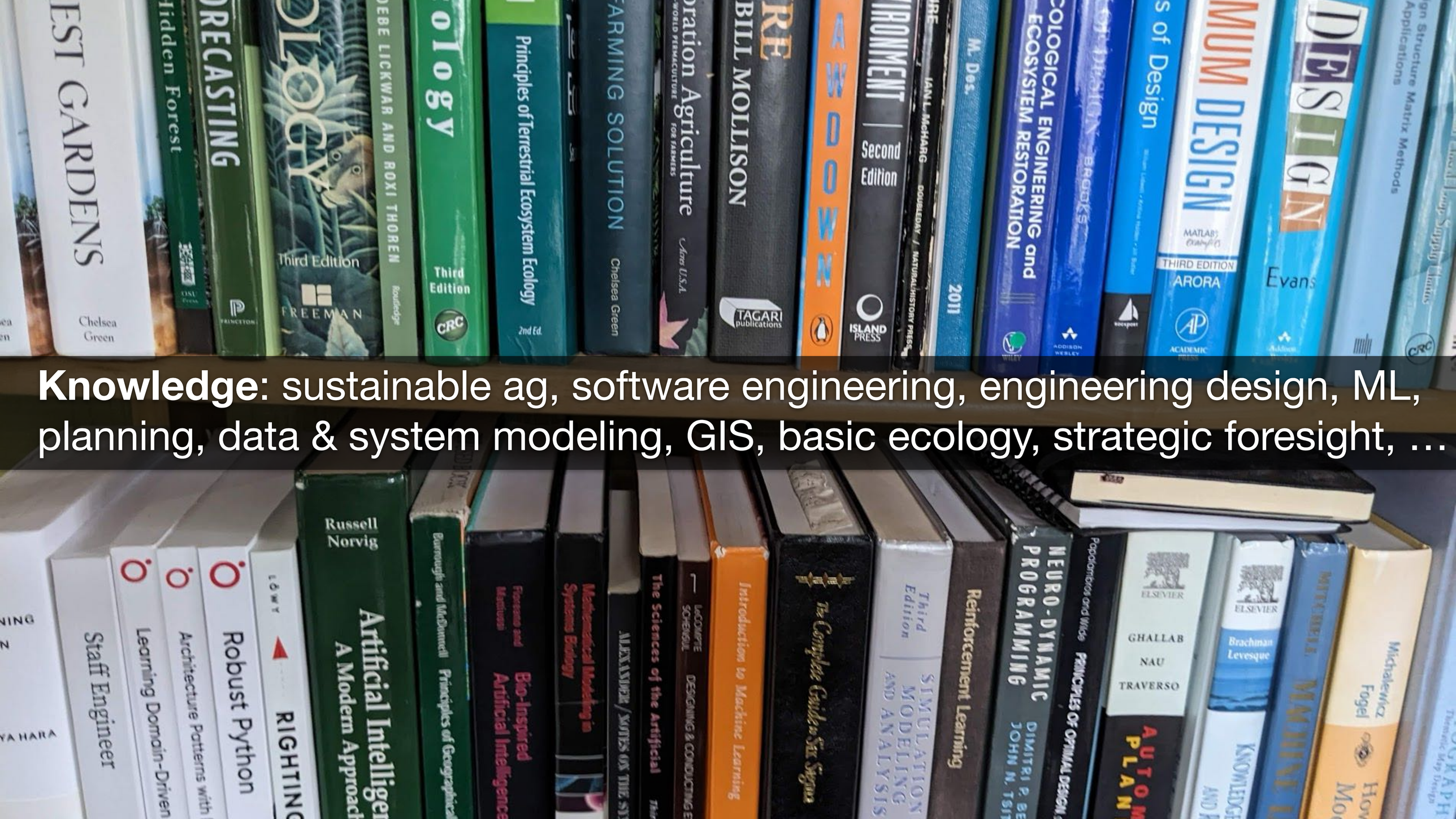
- **Major Research Project at OCAD U (for Master of Design in Strategic Foresight and Innovation)**
  - Major Project: *Addressing Risk Governance Deficits through Scenario Modeling Practices*.
  - Committee review excerpt: "*John's work as demonstrated in the MRP can be recognized as an important contribution to systemic foresight theory and practice.... It has a serious moral thrust in its ability to deal effectively with problems of significant scale and complexity. Because of this temper, this methodology can ... facilitate breakthroughs of understanding, consensus for action, and the coordination of social power*"

- At Wolfram, created an **Engineering Design Toolkit** (not released) by putting in a few hours every day before going to work

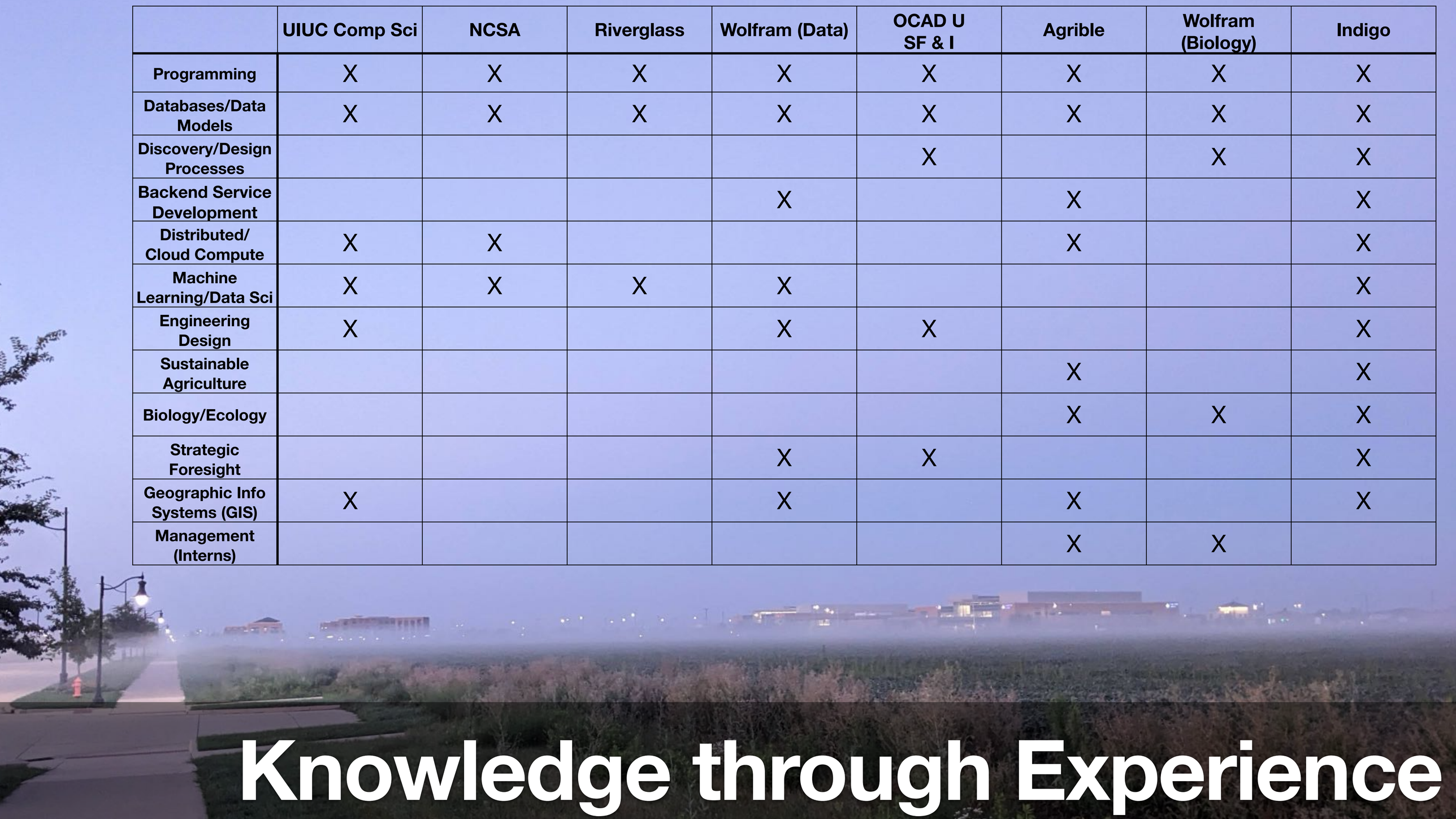
- **Thanksgiving 2023 Talk**: gave a motivational talk to the Indigo technology division about going forward positively after a second round of layoffs that year

Instances of Tenacity

- Spontaneously monitored servers at 4:30 am for months to see morning reports got sent
- Cleaned and published genetic sequences every day for months during COVID-19
- Handled data release as a member of a team the delivered a tested software product consistently every week for over a year
- Called for a restoration from a backup in the middle of an investor demo to preserve customer data



Knowledge: sustainable ag, software engineering, engineering design, ML, planning, data & system modeling, GIS, basic ecology, strategic foresight, …



	UIUC Comp Sci	NCSA	Riverglass	Wolfram (Data)	OCAD U SF & I	Agrible	Wolfram (Biology)	Indigo
Programming	X	X	X	X	X	X	X	X
Databases/Data Models	X	X	X	X	X	X	X	X
Discovery/Design Processes					X		X	X
Backend Service Development				X		X		X
Distributed/ Cloud Compute	X	X				X		X
Machine Learning/Data Sci	X	X	X	X				X
Engineering Design	X			X	X			X
Sustainable Agriculture						X		X
Biology/Ecology						X	X	X
Strategic Foresight				X	X			X
Geographic Info Systems (GIS)	X			X		X		X
Management (Interns)						X	X	

Knowledge through Experience

Point of View

Vision

Variety at Scale

deploying computation-supported flexibility
to select and deploy varying crops and field operations at scale
for improved multi-criteria agro-ecological performance

Approach

How we get there matters:
we work towards the world we want
by building caring environments
and situations

Interests Pursued

Additional Professional Interests

- domain design and backend service architecture
- design of research environments for science/data science
- sense-making, ambiguous situation framing, and design research
- appropriate and sustainable introduction of decision automation

Academic Interests

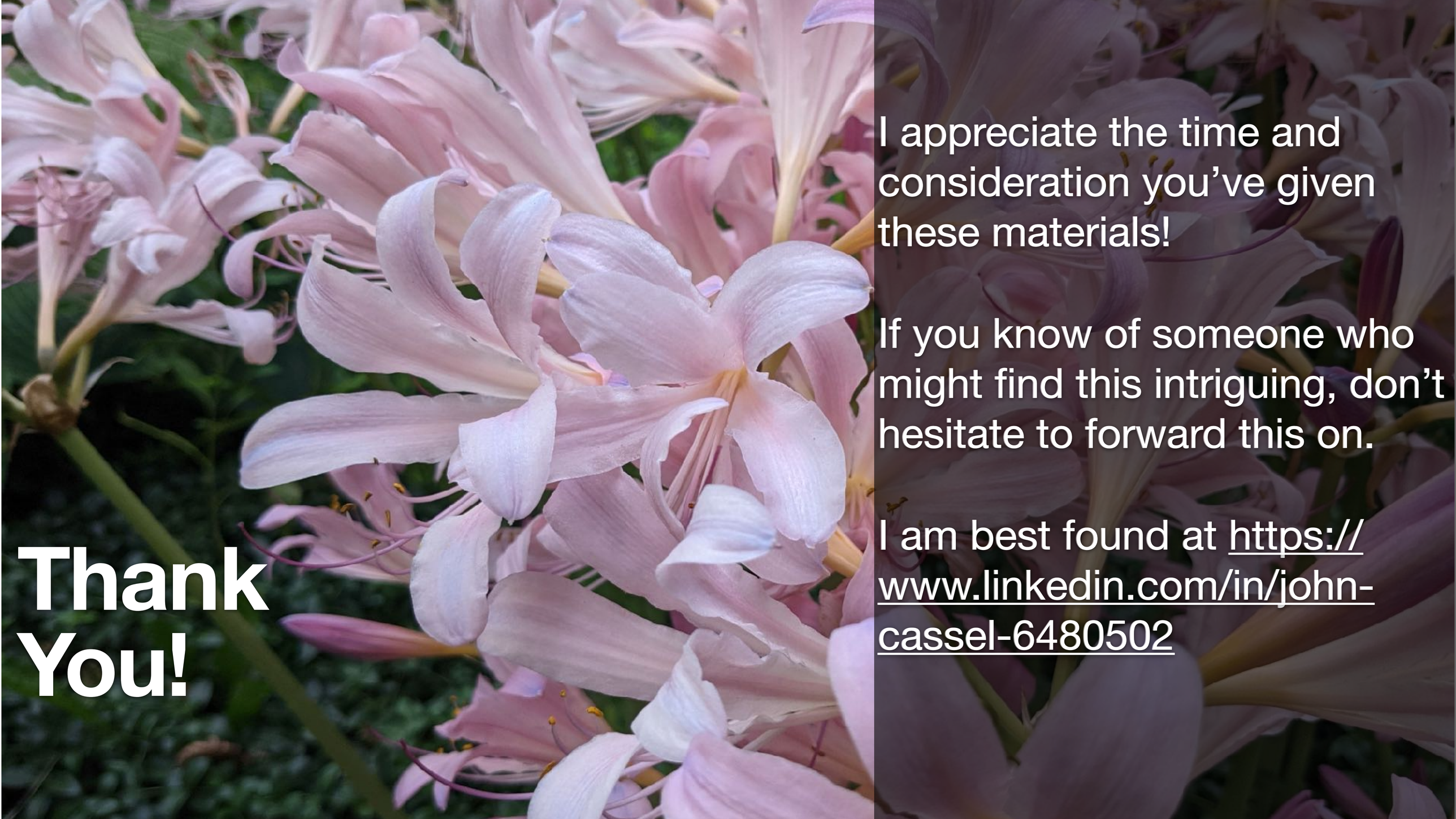
- applications of open-ended multi-disciplinary optimization to multifunctional agricultural and landscape system design
- sustainability trade-offs for appropriate use of decision technology in agro-ecological decision making
- current and theoretical limits for the feasibility of handling crop variety at scale

Conclusion

Stance

There are many temptations to use computation for purposes other than our collective flourishing. It will take not only expertise and knowledge, but discretion, judgment, and character to demonstrate the leadership that pursues better means and ends.

I may not be successful at this, but I will certainly try.



Thank You!

I appreciate the time and consideration you've given these materials!

If you know of someone who might find this intriguing, don't hesitate to forward this on.

I am best found at https://www.linkedin.com/in/john-cassel-6480502