DAN LI

Phone: (812) 349-8526
Email: dli1@iu.edu
Indiana University
Bloomington, IN 47401

PROFILE

Interdisciplinary team player
- Background in engineering (B.Eng.), history of science (M.A.), philosophy of science and complex system & network (Ph.Ds expected in 2023)

Ph.D. student double majoring humanities and science
Fast learner in understanding concepts, theories, relationships etc.
Efficient communicator across domains of expert knowledge
Bilingual (Native Chinese + English w/ full professional proficiency)

EXPERIENCE

2020 – 2022 *Graduate Research Fellow* | Indiana University Bloomington

On a generous and highly competitive university fellowship, I continue my dissertation research that sits between network science, climate science, and philosophy of science. My dissertation aims to provide: (1) methodological reflections in dendroclimatology and machine learning applications; (2) philosophical foundations of network science and methodological justification for climate networks.

The most valuable skill that I gained in grad school is to *communicate difficult ideas effectively with experts from diverse academic background in familiar and accessible ways*. My committee members and cohorts are from three distinct departments and they know very little about the others' fields. My dissertation requires me to *coordinate and synthesize various expert perspectives and arrive at an account clearly written and approved by all my committee members*, which constitutes a part of my strategy for solving the puzzles posed in my dissertation.

During the process, I also gained *skills, speed, proficiency in reading and understanding difficult texts*, including both philosophical and scientific literature. I have improved my *writing* skills by writing for academic audiences in journals and technical reports for class projects.

In completing the course requirement, I have improved my familiarity with Python (e.g., A+s in course work such as *Artificial Intelligence, Data Visualization*, and *Network Science*). Other courses include Trends in Extreme Weather and Climate Dynamics. First, when collaborating with my classmates from computer or network science, I learned that my strengths are *breaking down problems into manageable small chunks, being able to focusing on the bigger picture, and coordinating the team to ensure steady progress.* Second, I gained considerable skills in *data analysis and programming* and I learn from my teammates. Thirdly, I have sufficient training in *understanding, evaluating, and explaining scientific literature in accessible ways*.

2019 – 2020 *Associate Instructor* | Indiana University Bloomington

I taught *Scientific Reasoning* to undergraduates. An introductory course that aims to improve students' *critical thinking with science-related issues*. The topics included *logic*

and fallacies, data visualizations, primer to statistics, probability theory, etc. I designed my own syllabus, quizzes, assignments, and exams.

2018 – 2019 *Graduate Research Fellow* | Indiana University Bloomington

Awarded with a competitive entrance fellowship as a first-year Ph.D. student, I entered grad school without teaching or assistant obligations.

2015 – 2017 *Teaching Assistant* | Peking University (China)

I assisted grading and led weekly seminars for *History of Science*, an undergrad course.

EDUCATION

Ph.D. Indiana University, Bloomington 2018-Expected May 2023
- *Major: Complex Networks and Systems*
- *Major: Philosophy of Science*
- *Minor: Earth and Atmospheric Sciences*

Dissertation: "Frontiers in Climate Science: a methodological inquiry"
Committee: Elisabeth Lloyd (chair), Alessandro Flammini (co-chair), Ben Kravitz, Amit Hagar

M.S. Peking University 2015-2018
- Major: History of Science

Thesis: "The Pharmaceuticalization of Premenstrual Syndrome: from progesterone to Sarafem"
Advisor: Guosheng Wu

B.E. University of Science and Technology of China 2009-2014
- Major: Thermal Science and Energy Engineering

Thesis: "The Calculation of the Optical Properties of VO_2 as Meta-materials"
Advisor: Hong Ye

LANGUAGES

Chinese: Native
English: Proficient (4+ years in accredited U.S. university)
Japanese: Novice Speaker, Intermediate Reading

COMPUTER SKILLS

Programming: Python (with a passion for data visualization), C
Platform: AutoCAD (after all, a trained mechanic engineer)

HONORS AND AWARDS

College of Arts and Science CNS Graduate Fellowship 2020-2022
Two-year graduate fellowship for students participating in the NSF-funded CNS research trainee program

Informatics Graduate Support Fellowship 2020-2022
Two-year support fellowship for graduate students from College of Arts and Science
Irving & Leno Lo Scholarship 2019-2020
Scholarship for students in music, history and philosophy of science, etc.
College of Arts and Science Graduate Scholars Fellowship 2018-2019
Entrance fellowship for first-year Ph.D. students

RESEARCH IN PROGRESS

"Does Universality Make A Difference? —a tale of two metaphysical principles" (co-authored with Ryan O'Loughlin)

"Machines Do Not Need to Learn Convection"

"Null Hypothesis' Revenge: first on p-value, then on Bayes factor"

PUBLICATIONS

Journal Papers Accepted

Journal Papers in Review

Li, D., and O'Loughlin, R., "Model Robustness in Economics: the admissibility and evaluation of tractability assumptions," under review at *Philosophy of Science*

Li, D., "If A Tree Grows No Ring and No One Is Around: how scientists deal with missing tree rings," Revise and Resubmit at *Climatic Change*

Conference Papers/Abstract Accepted

(Peer-Reviewed)

Li, D. and O'Loughlin, R., "Tractability Assumptions, Holism, and Model Robustness," Philosophy of Science Association 27th Biennial Meeting (2020/2021), Nov. 11-14, 2021, PAPERID-PSA2020668.

O'Loughlin, R. and Li. D., "Can We Infer an Absolute Timescale from Local Data? – lessons from paleoclimatology," Boston University Philosophy Grad Student Conference, April 22-23, 2021.

(Abstract-Reviewed)

Li, D., "If A Tree Grows No Rings and No One is Around: how scientists deal with missing tree rings," Philosophy of Science Association 27th Biennial Meeting (2020/2021), Nov. 11-14, 2021, PAPERID-PSA2020956. [video abstract]

Conference Papers/Abstract in Review

Li, D., "Some Models are Universal and Rare: does "universality" make a difference?," Philosophy of Science Association 27th Biennial Meeting (2020/2021), Nov. 11-14, 2021, PAPERID-PSA20201030.

PRESENTATIONS AND INVITED LECTURES

Paper Presentation

- "Tractability Assumptions, Holism, and Model Robustness," (coauthored with Ryan O'Loughlin) IU HPSC Women's Leadership Conference, October 26th, 2019. [recording]

- "The Medicalization of Premenstrual Syndrome," 9th Meeting of International Society for the History of Medicine, September 2017.

PROFESSIONAL TRAINING

Philosophy & Physical Computing 2019 Summer Workshop
Virginia Tech, Blacksburg, June 10-23, 2019
Two-week summer workshop that aims to bridge the gap between philosophers and computer scientists.

PROFESSIONAL AFFILIATIONS

Member of *Philosophy of Science Association*

PROFESSIONAL SERVICE

Graduate conference Co-Organizer
IU HPSC Women's Leadership Conference, October 26, 2019

OTHER

Big fan of forensic science. Constantly amazed by the variety of evidence employed in solving murders—methodological pluralism rocks!

REFERENCES

Dr. Elisabeth Lloyd, Distinguished Professor
History and Philosophy of Science and Medicine, Biology, Kinsey Institute for Research
Indiana University
Ballantine Hall 905
Phone: (812) 855-3195
Email: ealloyd@indiana.edu