

## EMPLOYMENT

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**Kruskal Instructor (Applied Mathematics, University of Chicago)** Aug 2020 – present

**Research:** Works actively with 7 research groups at 3 institutions. Expertise includes population training, uncertainty quantification, information flow in neural networks, and topology random processes.

**Teaching:** Designed and taught 6 undergraduate and graduate level courses. Restructured the linear algebra sequence, adapted teaching materials to focus on applications, and created a new reinforcement learning course.

**Mentoring:** Mentored 12 students, 8 currently (5 undergraduate, 6 MS, and 1 PhD). Encourages students to collaborate across projects and participate in field specific labs. Successfully directs each project to a deliverable.

**Recognition:** Suzuki Postdoctoral Fellowship Award 2022.

**Research Consultant and Founder (Alexander Strang Consulting LLC)** Jan 2021 – present

Consults with industrial clients ([LAIC](#)) on AI in strategic choice. Developed data visualization methods, proposed novel training paradigms, and advised on objectives and grants. Represents the collaboration at major summits.

## EDUCATION

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PhD (Applied Mathematics). Case Western Reserve University 2016 – 2020

Bachelor's of Science (Mathematics and Physics). Case Western Reserve University 2012 – 2016

## RESEARCH

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**Research Summary**

[Full Publication List](#)

14 publications (8 first-author) spanning graph theory, optimization, Bayesian inference, biophysics, population ecology, stochastic processes, evolutionary game theory, and data visualization.

**Selected Publications**

Strang, Alexander et al. (2018). "Generalized relationships between characteristic path length, efficiency, clustering coefficients, and density". In: Social Network Analysis and Mining.

Calvetti, Daniela et al. (2019). "Hierarchical Bayesian models and sparsity:  $\ell_2$ -magic". In: Inverse Problems.

Strang, Alexander (2020). "Solutions to the minimum variance problem using Delaunay triangulation". In: SIAM Journal on Discrete Mathematics.

Strang, Alexander et al. (2022). "The network HHD: Quantifying cyclic competition in trait-performance models of tournaments". In: SIAM Review.

## SKILLS

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**Technical Proficiencies**

Python, Matlab, GitHub, LaTeX

**Communication**

Delivered 250+ lectures, invited speaker at 20+ conference and seminar talks, and WGBH (NPR) Living Lab Radio interviewee

## LEADERSHIP

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**Cross Country Coach (Kenwood Academy, Chicago Public Schools)** Mar 2022 – present

Developed a complete 6 month training plan for [Kenwood Academy's first full season](#). Ran daily with the boys and girls, led workouts, prepared race plans, and individually mentored 35 athletes.

**Workshops and Professional Events**

**Banff International Research Station:** Lead organizer of a [5 day international workshop](#) with 30+ participants.

**Joint Mathematics Meetings:** Co-organized a [session on stochastic processes in biology](#).

**Chair of the [Committee on Outreach and Engagement](#)**

Jan 2022 – present

Proposed the committee, and organize events to create an inclusive department culture by connecting students and faculty to our broader community.