

Elan Ness-Cohn, Ph.D.

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SUMMARY

- ▶ Computational Biologist with translational drive and proven track-record of software & research publications in top academic journals
- ▶ Collaborative leader who brings a diverse perspective – *e.g.* math & science literacy, wet & dry lab experience, and educational & business pragmatism – and is versed in bridging interdisciplinary communication gaps
- ▶ Strategically minded analyst – armed with a breathe/depth of data science skills – adept at executing diligence & communicating results to wide audiences

EXPERIENCE

Entrepreneurial Fellow – Chicago Biomedical Consortium (CBC) – Chicago, IL

2022–date

Opportunity Diligence:

- ▶ Evaluating scientific and commercial merits of translational research grant proposals to accelerate academic biomedical innovation at Chicago's R1 research universities; led diligence on 3+ projects, assisted on 4+ projects
- ▶ Conducted microbiome landscape analysis and developed positioning strategy for a bacteria-based therapeutic platform; presented results to 30+ industry & venture partners to gauge interest & gain insight on execution

Scientific Consulting:

- ▶ Advising 20+ academic groups on translational & commercial implications of early-stage research, guiding programs towards more efficient use of limited funds to prioritize key milestones for future investment
- ▶ Built-out and analyzed an internal Chicago faculty database of over 160+ members and 20+ success metrics; identified and contacted promising faculty to fill award funding pipeline.

Project Management:

- ▶ Spearheading development of multiple platform technology's investment theses defining the competitive landscape, current & future positioning, budget & resource allocation, and clinical/regulatory strategy
- ▶ Managing timelines, budgets, and personnel working across multiple external partners to advance pre-IND data package of a myeloid cancer therapeutic
- ▶ Directed application triage for external partners in Chicago – Women in Bio (WIB)/Portal Innovations; identified 5 finalists for the WIB 8.0 start-up challenge

Ph.D. Candidate – Braun Lab, Northwestern University – Evanston, IL

2017–2022

Multi-Disciplinary Collaboration:

- ▶ Led 5 collaborative projects leveraging inter-disciplinary expertise in circadian biology and applied math; resulted in 3 oral podia, 7 posters at the national & international stage, and 3+ first author publications in high profile academic journals including *Science* and *Bioinformatics*

Software Development:

- ▶ Developed a suite of 3 open-source software packages for optimizing the design and analysis of *omic time-series experiments for chronotherapeutic application with over 6K+ downloads and ~30hours/month usage

Team Management:

- ▶ Mentored 11+ graduate and 2 undergraduate students in various computational research and data management techniques; led to the development of 1 software package and accompanying manuscript

Teaching/Communication:

- ▶ Designed an *Intro to Data Science Lab Course* and taught 5 grad and 2+ undergrad level courses in Cell Biology, Bioinformatics, Biostatistics, and Data Science; resulted in procurement of graduate level teaching certificate

Undergraduate Research Assistant – MIT – Cambridge, MA

2015–2017

- ▶ Jaenisch Lab: *Engineering Human Pluripotent Stem Cells With Insulin Reporter to Model Type 1 Diabetes*
- ▶ Kim Lab: *Regulation of Stress Physiology & Longevity by the EIF3 Translation Initiation Complex in C. Elegans*

EDUCATION

Northwestern University – Ph.D. (Biomedical Research) – *Evanston, IL* 2022
MIT – B.Sc. (Biology), Concentration (Education) – *Cambridge, MA* 2017
► **Honors:** Senior Thesis - Boit Prize for Engineering Writing

COMPUTATIONAL & TECHNICAL SKILLS

Programming: R • Python • Bash • R Shiny • \LaTeX • git • SQL • HPC (SLURM)
Machine Learning: Tidymodels • Keras • Tensorflow
Data Mining: statistical analysis • dimensionality reduction • clustering • visualization
Modeling: dynamical systems • topological analysis • toy model development
Research: algorithm & pipeline development • inter-disciplinary collaboration • software development
Laboratory: CRISPR/Cas-9 genome editing • plasmid design • molecular cloning • qPCR
Market Intelligence: primary market research (*e.g.* KOL/Physician interviewing)
secondary data analysis (*e.g.* GlobalData, BioCentury, Pitchbook, Biomedtracker, *etc.*)
Languages: English • Hebrew

SOFTWARE (HIGHLIGHTS)

Fasano-Franceschini Test – R Package

An open-source implementation of the Fasano and Franceschini test – a 2-D Kolmogorov-Smirnov (KS) two-sample test

R Package Website: [\[Link\]](#)

TimeCycle – R Package


A non-parametric method that leverages results from dynamical systems theory and algebraic topology to test whether a dynamical variable (gene expression) exhibits cycling dynamics

R Package Website: [\[Link\]](#) • **Video Tutorial:** [\[Link\]](#)

TimeTrial – R Shiny Web Application

An interactive software suite that enables circadian researchers to perform head-to-head comparisons of four leading cycle detection methods using both synthetic and biological data

R Shiny Synthetic Data: [\[Link\]](#) • **R Shiny Biological Data:** [\[Link\]](#) • **Video Tutorial:** [\[Link\]](#)

Additional work can be found on my GitHub profile:  [github/nesscoder](https://github.com/nesscoder)

SELECT PUBLICATIONS

- [1] **Ness-Cohn, Elan** and Rosemary Braun. TimeCycle: Topology Inspired Method for the Detection of Cycling Transcripts in Circadian Time-Series Data. *Bioinformatics*, 2021.
- [2] **Ness-Cohn, Elan**, Ravi Allada, and Rosemary Braun. Comment on “Circadian rhythms in the absence of the clock gene Bmal1”. *Science*, 372(6539), 2021.
- [3] **Ness-Cohn, Elan**, Marta Iwanaszko, William L Kath, Ravi Allada, and Rosemary Braun. TimeTrial: An interactive application for optimizing the design and analysis of transcriptomic times-series data in circadian biology research. *J Biol Rhythms*, 35:439–451, 2020.
- [4] Sophia B. Gibson, **Ness-Cohn, Elan**, and Erik C. Andersen. Benzimidazoles cause lethality by inhibiting the function of *Caenorhabditis elegans* neuronal beta-tubulin. *International Journal for Parasitology: Drugs and Drug Resistance*, 20:89–96, 2022.
- [5] Douglas J. Cattie, Claire E. Richardson, Kirithi C. Reddy, **Ness-Cohn, Elan**, Rita Droste, Mary K. Thompson, Wendy V. Gilbert, and Dennis H. Kim. Mutations in nonessential eIF3k and eIF3l genes confer lifespan extension and enhanced resistance to ER stress in *caenorhabditis elegans*. *PLoS Genetics*, 12(9):e1006326, 2016.

Additional work can be found on my Google Scholar profile:  [googleScholar/Ness-Cohn](https://scholar.google.com/citations?user=Ness-Cohn)