Elan Ness-Cohn, Ph.D.

nesscoder.com ness.cohn.elan@gmail.com (847) 420-0296
github.com/nesscoder linkedin.com/nesscohn Chicago, IL

Summary

- **Complex thinker:** Nimble learner with a diverse repertoire of expertise – *e.g.,* math & science literacy, wet & dry lab experience, and educational & business pragmatism – motivated by solving multifaceted problems
- **Empathetic collaborator:** Intuitive, team-oriented leader – versed in bridging interdisciplinary & interpersonal communication gaps – with track record of driving high impact scientific discovery
- **Relentlessly curious:** Meticulous, strategically-minded analyst – armed with a breadth/depth of data science skills – adept at executing deep diligence & clearly communicating results to wide audiences

Experience

Entrepreneurial Fellow – Chicago Biomedical Consortium (CBC) – Chicago, IL 2022–date

The CBC Entrepreneurial Fellowship (EF) is a highly selective, full-time program that trains Chicago's best PhDs to assess key commercial, technical, clinical, and financing components of academic projects eligible for $250K awards

▶ ***Led and supported assessments of early-stage therapeutic technologies:***
- Part of four-Fellow cohort that over eight months, assessed 15+ letters of intent (LOI), yielding 4 full scale assessments and 1 award; led 4+ LOI & 1 full scale assessment; supported 9+ LOI & 3 full scale assessments
  - *LOI:* over stringent 3-week process developed case to (de-)prioritize projects; communicated results to academic/pharma/VC review boards (*e.g.,* ML-based drug tox screening of iPSC organoids – *deprioritized*)
  - *Full Scale:* through rigorous 10-week process developed technology positioning for microbial consortia platform in the context of current, financed, microbiome landscape; articulated investment thesis based on positioning, potential indications, financing risk, and go/no-go experiment to 30+ pharma & VC partners

▶ ***Managed peers, academic faculty, and Industry partnerships:***
- Managing 2+ CBC funded projects; advising on experimental plans; establishing timelines & budgets; coordinating scientist & contractors to hit milestones (*e.g.,* pre-IND data package of myeloid cancer therapeutic)
- Strategically advising 3+ academic labs on translational of early-stage research; guiding faculty in strategic positioning of assets; informing experimental plan based on key experimental benchmarks/regulatory milestones
- Advised external partners – Women in Bio (WIB) – in initial assessment of start-up pitch decks; constructed assessment framework and oversaw execution; yielded 5 finalists for the WIB 8.0 start-up challenge

▶ ***Built infrastructure:***
- Designing web-app – in partnership with Portal Innovations – to centralize Chicago's resources for Biotech founders; devised project plan; directing curation strategy; developing codebase & maintenance workflow
- 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

Ph.D. Candidate – Braun Lab, Northwestern University – Evanston, IL 2017–2022

▶ ***Spearheaded multi-disciplinary research collaborations:***
- 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*

▶ ***Designed and taught biology, math, and programming courses:***
- 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

▶ ***Managed research team:***
- 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

▶ ***Developed software:***
- 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

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
- **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 Complex in C. Elegans*

Computational & Technical Skills

Programming: R • Python • Bash • R Shiny • LaTeX• git • SQL • HPC (SLURM)
Machine Leaning: 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

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, Kirthi 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