Elan Ness-Cohn, Ph.D.

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SUMMARY

▶ Computational Biologist with software and research publications in top academic journals
▶ Unique blend of math & science literacy, wet & dry lab experience, and educational & business pragmatism
▶ Strong programming skills and desire to continue pushing the boundary of the Chicago biotech ecosystem

EXPERIENCE

Entrepreneurial Fellow – Chicago Biomedical Consortium (CBC) – Chicago, IL 2022–date
Search and Evaluation:
▶ Diligenced early-stage therapeutic proposals for the allocation of $250K grants to accelerate the translation of transformative biomedical technologies across Chicagoland's flagship Universities
▶ Distilled feedback from interviews with key opinion leaders, physicians, consultants, and venture capitalists into data packages for commercial guidance of academic inventors
Project Management:
▶ Spearheaded development of a platform technology's investment theses defining the competitive positioning, budget & resource allocation, competitive landscape analysis, and clinical/regulatory strategy
▶ Managed timelines and personal working across multiple external partners to advance pre-IND data package of a myeloid cancer therapeutic

Ph.D. Candidate – Braun Lab, Northwestern University – Evanston, IL 2017–2022
Multi-Disciplinary Collaboration:
▶ Led 5 collaborative projects leveraging inter-disciplinary expertise resulting in 3+ first author publications in high profile academic journals including *Science* and *Bioinformatics*
▶ Developed a suite of 3 open-source software packages for optimizing the design and analysis of *omic time-series experiments in circadian biology research for chronotherapeutic application
Team Management:
▶ Trained/mentored 8 graduate and 2 undergraduate students in various computational research and data management techniques leading to the development of 1 software package and accompanying manuscript

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 Tanslation Initiation Complex in C. Elegans*

EDUCATION

Northwestern University – Ph.D. (Biomedical Research) – *Evanston, IL* 2022
▶ *Topology Inspired Methods for the Design and Analysis of Transcriptomic Time-Series Data in Circadian Biology Research:* combined data science and biology to develop new computational methods for understanding the molecular mechanisms and dynamics of circadian rhythms for chronotherapeutic application.

MIT – B.Sc. (Biology), Concentration (Education) – *Cambridge, MA* 2017

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
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 – downloaded by 6K+ in the R community

R Package Website: [Link]

TimeCycle - R Package
A non-parametric method that leverages results from dynamical systems theory and 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

Teaching

Northwestern University – Searle Teaching Certificate Program　　　　　　　　　2020 − 2021
Designed/developed an *Intro to Data Science Lab Course* complete with a course outline, sample lesson plan, sample assessments, grading scheme, evaluation plan, and interpretation of teaching effectiveness

Northwestern University

What Do Your Data Say? (DataScience Bootcamp), Teaching Assistant	Spring 2020
IGP 486: Advanced Bioinformatics/Genomics, Teaching Assistant	Winter 2020
Collabrative Learning & Intergrated Mentoring in the BioSciences (CLIMB)	
IGP 405: Cell Biology, Teaching Mentor	Winter 2021
IGP 484: Biostatitics, Teaching Mentor	Fall 2019, 2020

MIT

7.012: Introductory Biology, Teaching Assistant	Spring 2017
18.05: Introduction To Probability and Statistics, Teaching Assistant	Spring 2016
Department of Biology Tutoring Program, Tutor	2016–2017
Intro Biology, Experimental Biology and Communication, Genetics, Biochemistry, Cell Biology	

Select Publications (5 of 7)

[1] **Ness-Cohn, Elan** and Rosemary Braun. TimeCycle: Topology Inspired MEthod for the Detection of Cycling Transcripts in Circadian Time-Series Data. *Bioinformatics*, jun 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, dec 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