Currently
Postdoc @ EMBL

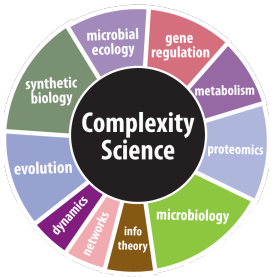
Mail
aaron.brooks@
embl.de

Steinmetz Lab
Genome Biology Unit
EMBL,
Meyerhofstrasse 1
69117 Heidelberg,
Germany

Web
aaronbrooks.info
linkedin/aaron-brooks
github/scalefreegan

Twitter
@scalefreegan

Research Interests



AaronBrooks/PhD

Genetics of complex adaptive (synthetic) biological systems

Publications

SK Strauss, D Schirman, G Jona, **AN Brooks**, ..., Y Pilpel. **Evolthon: A Community Endeavor to Evolve Lab Evolution.** *PLOS Biol. (In press).*

AN Brooks, WF Mueller, LM Steinmetz (2016) **SYGNALing a Red Light for Glioblastoma.** *Cell Systems* 3 (2), 118-120

S Imam, S. Schaueble, **AN Brooks**, NS Baliga, ND Price. (2015) **Data-driven integration of genome-scale regulatory and metabolic network models.** *Front. Microbiol.* 6:409

CL Plaisier, FY Lo, J Ashworth, **AN Brooks**, KD Beer, A Kaur, M Pan, DJ Reiss, FT Facciotti, NS Baliga. (2014) **Evolution of Context Dependent Regulation by Expansion of Feast/Famine Regulatory Proteins.** *BMC Systems Biology* 8(1):122.

H Westerhoff*, **AN Brooks***, E Simeonidis*, R Garcia-Contreras*, F Boogerd, F He, VJ Jackson, V Goncharuk, A Kolodkin. (2014) **Macromolecular networks and intelligence in microorganisms.** *Front. Microbiol.* 5:379.

AN Brooks*, DJ Reiss*, A Allard, W Wu, DM Salvanha, CL Plaisier, S Chandrasekaran, M Pan, A Kaur, NS Baliga. **A system-level model for the microbial regulatory genome.** *Mol Syst Biol.* (2014) 10: 740.

AN Brooks, S Turkarslan, KD Beer, FY Lo, NS Baliga. (2011) **Adaptation of cells to new environments.** *Wiley Interdiscip Rev Syst Biol Med.* 3(5): 544–561.

* Denotes equal contribution

Research

2015 - now **Postdoc** EMBL | Genome Biology Unit

Project: "Molecular consequences of large-scale genetic variation in synthetic yeast."

Advisor: Prof. Lars Steinmetz, Professor of Genetics, Stanford University, Co-Director, Stanford Genome Technology Center, Group Leader and Senior Scientist, EMBL, Germany

Key skills developed: Long-read DNA/RNA sequencing, pipeline development, scalable computing, containerized computing, grantsmanship (1.4M received), project leadership and management

Education

Wetlab

DNA/RNA Sequencing

Long read sequencing (Nanopore)

Microbial culture

Computational

Common languages (Python, R, Bash, HTML/JS)

Pipeline development (Snakemake)

Parallel environments (SLURM, SGE)

Containerization (Singularity, Docker)

Database management (SQL and NoSQL)

Web frameworks (Django, Shiny)

2008 - 2014 **PhD Molecular and Cellular Biology** University of Washington
Dissertation: "Data-driven inference of dynamic transcriptional regulatory mechanisms in prokaryotes: a systems perspective."
Advisor: Prof. Nitin Baliga, SVP and Director, Institute for Systems Biology
Key skills developed: Machine learning (ensemble learning), full-stack software development, scientific writing, scientific collaboration

2002 - 2007 **BS Biochemistry & BA Political Science** University of New Mexico
Thesis: "Characterization of the dynamic interactions of cytoplasmic poly(A) binding protein with poly(A) RNA."
Thesis Honors: Robert B. Loftfield Award
Advisor: Prof. David G. Bear
Summa Cum Laude
General University Honors
Minor: Philosophy
Key skills developed: Basic laboratory skills

In the news

05/2014 **Knowing Networks** NIH NIGMS Inside Life Science
Outreach at USA Science and Engineering Festival

Awards

2016-2019 **EMBL Interdisciplinary Postdoctoral Fellowship (EIPOD)** EU Marie Curie Actions

2010-2013 **Office of Science Graduate Fellowship** Department of Energy

2007-2008 **Postbaccalaureate Research Education Program (PREP)** NIH

2006-2007 **Initiative for Maximizing Student Development (IMSD)** NIH

2006 **Goldwater Scholarship** Barry M. Goldwater Foundation

Teaching & Outreach

2019 **Advanced Training with Oxford Nanopore Technologies** EMBL, Heidelberg
Speaker

2018 **Using Nanopore Technology for Real Time, Direct, Scalable DNA/RNA Sequencing** EMBL, Heidelberg
Speaker

2015 **Data Mining and Integration with Networks** EMBL, Heidelberg
Co-organizer, Speaker

2014 **USA Science and Engineering Festival** Washington, D.C
Designed and facilitated a hands-on activity and web-based game to understand the structure and function of networks. Over 300 students have played the online game.

2011 **Introduction to Systems Biology** Institute for Systems Biology
Co-organizer, Speaker

2009-2015 **Science Communication Fellow** Pacific Science Center, Seattle WA

Students mentored

2019 **Ramya Vijayram** — MS student at IIT Madras, India

2016-2017 **Marc Rubsam** — MS student at Heidelberg University, Germany

2016 **Felix Frauhammer** — PhD student at Heidelberg University, Germany

2012 **Robin Green** — PhD student at University of Washington, WA
Currently at Fred Hutchinson Cancer Research Center

2011 **Darach Miller** — Undergraduate at UC Davis, CA
Currently PhD student at NYU

2010 **Alexis Valauri-Orton** — Undergraduate at Davidson College, NC
Currently Ocean Acidification Intern at Ocean Conservancy

Other

2011 **Complex Systems Summer School** — Santa Fe Institute

2010 **MCB Student Symposium** — Fred Hutchinson Cancer Research Center
Co-organizer, *Bioplasticity: flexibility within and beyond the code*

References

Lars Steinmetz, PhD — EMBL / Stanford
+49 6221 387-8389
larsms@embl.de

Nitin Baliga, PhD — Institute for Systems Biology
+1 206 732-1266
nbaliga@systemsbiology.org

Patrick Cai, PhD — University of Manchester
+44 161 3064214
yizhi.ca@manchester.ac.uk

Vladimir Benes, PhD — EMBL, Head of Genomics Core Facility
+49 6221 387-8486
benes@embl.de

Elhanan Borenstein, PhD — University of Washington
+1 206 6858165
elbo@uw.edu