

# Daniel Chan

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## Education

**University of Chicago** **Chicago, IL, USA**  
*MS (admitted as a PhD student), Microbiology (Infectious disease focused department)* 2011–2016

**University of Waterloo** **Waterloo, ON, Canada**  
*BS, Honours Microbiology and English (Rhetoric) Minor* 2006–2011

**Certificate programs:** Business of Life Sciences, Elements of Successful Teaching in the Sciences, Elements of Successful Writing in the Sciences, Data Analysis in R, Software Carpentry (R)

## Service

**Biotech Without Borders** **New York, NY, USA**  
*President and Member* March 2020–present

- Reopened the lab in a new location after closing due to SARS-CoV-2 pandemic
- Organised volunteers, membership, and community members to generate mission-aligned programming
- Mentored a total of 4 undergraduate research interns to execute a molecular biology project requiring a high-level of technical training and international cooperation
- Facilitated collaborations between institutional and independent actors as well as within our community
- Managed a ~60K annual budget comprised of donations, membership fees, and event revenue
- Established an organisational structure to manage shared laboratory and administrative resources

**Translate Science** **Online**  
*Organiser* June 2022–present

- Facilitated meetings with academic and academic-adjacent participants concerned about multilingualism in science to build a strategic plan
- Migrated to and maintained various documents and services using FLOS Software solutions

**Free Radicals** **New York, NY, USA**  
*Member* January 2021–January 2023

- Organised social events to build community within a non-hierarchical organisation
- Facilitated meetings to train members in the process of workshop scheduling, development and facilitation

**Global Community Biosummit 5.0** **Online**  
*Organiser* October 2021–March 2022

- Reviewed submissions for and scheduled a program of 19 online workshops delivered over 3 days
- Moderated the online workshop space over Zoom and Slack
- Contributed to and edited the conference proceedings for publication

**University of Chicago, Biological Sciences Dept. Dean's Council** **Chicago, IL, USA**  
*Departmental Representative* September 2013–March 2016

- Communicated constituents' concerns to a group of peers to make joint decisions
- Planned a recurrent graduate student social coffee hour

**PLOS ONE**   
*Reviewer, Ad Hoc* May 2013

## Work/Research Experience

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### **Intouch Solutions, Editorial**

**New York, NY, USA**

*Senior Medical Analyst, Manager: Jaii Phillips-Beckley*

*September 2018–January 2022*

- Checked claims in pharmaceutical advertisements for accuracy as per FDA guidance and scientific literature
- Solicited consensus for style and claim edits to marketing materials
- Communicated through reports and presentations the medical/scientific aspects of pharmaceuticals to strategy and marketing teammates
- Conducted competitive analyses of marketed and pipeline pharmaceuticals/medical devices
- Trained team members across departments in evolving business processes

### **Genspace, OpenPlant project**

**New York, NY, USA**

*Community Lab Member*

*April 2018–February 2020*

- Attended and contributed to meetings designed identify scientific goals and make progress on key milestones
- Set up and managed Trello and Zotero accounts for coordinating the team
- Built a plant incubator for liverworts and published the plans online

### **Intouch Solutions, Creative Services**

**New York, NY, USA**

*Scientific Analyst, Manager: Jaii Phillips-Beckley*

*January 2017–September 2018*

### **University of Chicago, Department of Microbiology**

**Chicago, IL, USA**

*Graduate Student, PI: Dr. Julianne Bubeck Wardenburg*

*September 2011–December 2016*

- Managed an independent scientific research project in a BSL2+ laboratory
- Supervised and trained a visiting MD student to complete a small research project
- Cultured 3D organotypic tissue equivalents using primary human keratinocytes
- Generated and complemented bacterial mutants of *Staphylococcus aureus*
- Prepared and imaged specimens for immunofluorescent microscopy and scanning electron microscopy

### **University of Waterloo, Department of Biology**

**Waterloo, ON, Canada**

*Senior Thesis Student, Supervisor/PI: Dr. John J Heikkila*

*September 2010–June 2011*

- Applied previous molecular biology skills to a new scientific context
- Cloned and purified two heat shock proteins
- Performed assays to assess molecular chaperone function of the recombinant protein

### **Yale University, Department of Neurobiology**

**New Haven, CT, USA**

*Research Assistant, PI: Dr. Nenad Šestan*

*January 2010–September 2010*

- Developed a polysome purification protocol using gradient centrifugation
- Measured promoter strength in a neuroblastoma cell line using luciferase reporters
- Assisted in management of a transgenic mouse colony
- Cloned and prepared large amounts of plasmid DNA for *in utero* electroporation

### **University Health Network, Cancer Genomics and Proteomics**

**Toronto, ON, Canada**

*Research Technician, PI: Dr. Nickolay Chirgadz*

*Fall 2008, Summer 2009*

- Optimized insect cell protein expression for fragment-based drug discovery
- Cloned a variety of cancer stem cell protein targets to improve solubility
- Small scale protein purification

### **logen Corporation, Fermentation R&D**

**Ottawa, ON, Canada**

*Research Assistant, Senior Scientist: Dr. Jan-Maarten Geertman*

*January 2008–April 2008*

- Modelled small scale bioreactor data using Excel Solver to improve upstream process
- Processed samples using HPLC SOPs to determine the progress of fermentations
- Conducted a small study on the nutritional requirements of different yeast species

## Outreach

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### **YouTube Microbiology Journal Club**

**Online**

*Host*

*May 2020–present*

- Recorded regular 1-1.5 hour episodes responding live and asynchronously to viewer questions and comments
- Researched and recorded >36 long-form videos explaining the findings of a scientific publication
- Directed multi-channel traffic to grow a YouTube channel from <100 subscribers to >300
- Manage the collected references in Zotero as a shared resource for the public

## **Analytics Lounge, Community Lab**

*Microscope Section Lead*

**Chicago, IL, USA**  
March 2017–September 2017

- Staffed monthly open house sessions to engage the public
- Developed and executed a microscope based booth activities for "hackerspace" events
- Managed the chemical supplies and chemical safety

## **Groks Science**

*Radio and Podcast Host*

**Online**  
March 2016–January 2017

- Read non-fiction books from publicists, screening for interesting ideas
- Acquired and conducted interviews with science authors
- Edited interviews into 10 podcasts for the internet

## **Microbiology Twitter Journal Club**

*Attendee and Moderator*

**Online**  
April 2014–January 2016

- Contributed to public discussions of open access microbiology journal articles to increase scientific engagement
- Fostered discussions among members using a hashtag on Twitter

## **Teaching and Mentorship**

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### **Biotech Without Borders**

*Instructor*

**New York, NY, USA**  
February 2019–present

- Designed and maintained class materials about biotechnology for the general public
- Guided >70 students across 40 hours of instruction in hand-on lab techniques
- Organised fully-funded external teaching engagements at public libraries
- Created marketing materials to support class registrations
- Prepared and presented lectures on key scientific topics for the public and iGEM teams

### **LEAP**

*Judge and Guest Speaker*

**New York, NY, USA**  
June 2019

- Engaged <15 students in a presentation about the process of creating a DIY plant incubator and how it relates to activism
- Supported student projects by providing constructive reviews of their work

### **University of Chicago, iGEM Team**

*Graduate Advisor*

**Chicago, IL, USA**  
June 2014–September 2016

- Mentored 3 teams (1/year) to complete 3 separate projects
- Exercised patience with troubleshooting tasks to create a comfortable learning atmosphere
- Encouraged goal setting and critical thinking to perform rigorous and timely research
- Jointly assisted in improving team assessment from bronze to silver

### **University of Chicago, Freelance Work**

*Course Tutor, Molecular Basis of Bacterial Disease*

**Chicago, IL, USA**  
January 2014–March 2014

- Designed test material to assess the progress of the student
- Explained key concepts taking into account my knowledge of the course and the students perspective
- Jointly achieved major improvements to course grades

### **University of Chicago, Biological Sciences Division**

*Teaching Assistant*

**Chicago, IL, USA**  
January 2013–June 2013

- Provided course support for two courses (Intro. to Virology, Molecular Basis of Bacterial Disease) of <30 students each
- Led weekly discussions of scientific papers with an emphasis on conclusions' dependency on experimental techniques
- Designed and graded exams; addressed concerns about grades
- Prepared and delivered a total of 3 lectures

### **University of Waterloo, Students Offering Support**

*Course Tutor*

**Waterloo, ON, Canada**  
Fall 2008

- Prepared sample exam test questions and review notes for a course (Intro. to Microbiology)
- Led a review session with <20 people consisting of Q&A with a focus on key concepts

## Publications

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**Chan DW** and Wardenburg JB. Staphylococcal Smooth Biofilm Morphology on Organotypic Human Keratinocyte Culture is Dependent on *agrA*. *Manuscript in preparation*, 2018.

<https://mfr.osf.io/render?url=https://osf.io/ft7dw/?action=download%26mode=render>

Khamis I, **Chan DW**, Shirriff CS, Campbell JH, and Heikkila JJ. Expression and localization of the *Xenopus laevis* small heat shock protein, HSPB6 (HSP20), in A6 kidney epithelial cells. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 201:12–21, November 2016.

Kwan K, Lam MS, Johnson M, Dube U, Shim S, Rašin MR, Sousa AM, Fertuzinhos S, Chen JG, Arellano J, **Chan DW**, Pletikos M, Vasung L, Rowitch D, Huang E, Schwartz M, Willemsen R, Oostra B, Rakic P, Heffer M, Kostović I, Judaš M, and Šestan N. Species-Dependent Posttranscriptional Regulation of NOS1 by FMRP in the Developing Cerebral Cortex. *Cell*, 149(4):899–911, May 2012.

## Posters

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**Staphylococcal Smooth Biofilm Morphology on Organotypic Human Keratinocyte Culture is Dependent on *agrA***

○ 23<sup>rd</sup> Annual Midwest Microbial Pathogenesis Conference

September 2016

**Interaction of *Staphylococcus aureus* with the *in vitro* human keratinized epithelium**

○ 13<sup>th</sup> Annual Chicago Biomedical Consortium Symposium, The Unseen Majority:  
*Microbes in Health and Disease*

October 2015

**Interaction of *S. aureus* USA300 with the human keratinized epithelium**

○ 6<sup>th</sup> Annual Northwestern University Skin Disease Research Center Retreat

June 2015

○ University of Chicago Biomedical Sciences Retreat

May 2015

**Interaction of *S. aureus* USA300 with the keratinized epithelium**

○ 16<sup>th</sup> International Symposium on Staphylococci and Staphylococcal Infections

August 2014

○ 21<sup>st</sup> Annual Midwest Microbial Pathogenesis Conference

September 2014

○ 5<sup>th</sup> Annual Northwestern University Skin Disease Research Center Retreat

June 2014

## Talks and Interviews

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**The theory and practice of a shared biolab maintained by volunteers**

○ Science of the Living City Lunch & Learn

January 2024

**Digital infrastructure for operating an autonomous shared lab space guided by member consensus**

○ Biosummit 6.0

January 2023

**Community biology as an organizational framework for social change**

○ 3<sup>rd</sup> Annual Summer School hosted by scholar.social

July 2022

○ CUNY LaGuardia Library Summer Lecture Series

June 2022

**Biotech Without Borders and community biology in NYC – A conversation with Danny Chan**

○ Access 2 Perspectives: Conversations

May 2022

**Community Biology Labs: building scientific capacity**

○ Regional Gathering on Autonomy and Survival

May 2022

**Biotech Education Access and Literacies: Challenges of science edutainment in makerspaces**

○ Biosummit 3.0

October 2019

## Awards and Fellowships

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- Open Life Science 7 Fellow** 2023  
Accepted into a 4-month program to develop a open governance structure for Translate Science, an initiative to build community around multilingual science
- Global Community Biosummit 5.0 Fellow** 2021  
Recognition of contributions within community biology. Selected to participate in a leadership development curriculum from the Leading Change Network
- University of Waterloo Graduating Dean's Honours List** 2011  
Recognition awarded for maintaining a cumulative average of >80% in an honours program
- WACE International Student Achievement Award** 2010  
Recognition awarded by the World Association for Co-operative Education for obtaining an exceptional international work placement at Yale University
- NSERC Undergraduate Student Research Award** 2007  
Funding awarded by the Natural Sciences and Engineering Research Council to pursue a research project in cellulosic ethanol R&D at Iogen Corporation
- Millennium Excellence Scholarship, Provincial Laureate** 2006–2010  
Awarded for excellence in community involvement, leadership and academic achievement
- University of Waterloo President's Scholarship** 2006  
Entrance scholarship awarded to individuals with an average of >90% graduating high school

## Digital Skills

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- Data analysis:** Microsoft Excel (base, macros, Solver), R (base, tidyverse, data.table, fitdistrplus, orddom, lme4, multicomp), SQL
- Data visualization/reporting:** R (grid, scales, ggplot2, knitr), LaTeX (beamer)
- Scripting/automation:** bash, GNU make, Python, Zapier
- Version control:** git
- Graphics editing:** GIMP, Inkscape, Krita
- Document preparation:** LaTeX, Zotero, Libre Office
- Web publishing:** HTML/CSS, Wordpress, G Suite (Ads, Search), Mailchimp
- Community management:** Loomio, Open Collective, CiviCRM

## References and Documentation

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- References and documents pertaining to individual entries available on request