

# TALON CHANDLER

## CURRICULUM VITÆ

### Biographical Information

Born: June 24, 1993 in Calgary, Alberta  
Citizenship: Canada  
Address: 606–655 Kansas Street  
San Francisco, CA  
94107  
Phone: (415) 416-2831  
Email: [talonchandler@talonchandler.com](mailto:talonchandler@talonchandler.com)  
Website: [talonchandler.com](http://talonchandler.com)  
Core interests: Image science, microscopy, fluorescence, polarized light,  
experimental design, biological applications.

---

### Current Position




**Research and Development Engineer II** 2022–  
Advisor: Shalin Mehta  
Chan Zuckerberg Biohub, San Francisco

















---

### Education

- [3] **Postdoctoral Scholar** 2021  
Advisor: Sabrina Leslie  
University of British Columbia
  - [2] **Ph.D. Medical Physics** 2020  
Dissertation: “Spatio-angular fluorescence microscopy”  
Advisor: Patrick La Rivière  
University of Chicago
  - [1] **B.A.Sc. Engineering Physics** 2015  
with electrical engineering specialization, with distinction  
GPA: 3.93/4.00  
University of British Columbia
- 

### Publications

- [6] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy III. Constrained angular diffusion, polarized excitation, and high-NA imaging,” *Journal of the Optical Society of America A*, vol. 37, no. 9, pp. 1465–1479, Sep. 2020, ISSN: 1520-8532. DOI: 10.1364/JOSAA.389217.  PDF
- [5] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy II. Paraxial 4f imaging,” *J. Opt. Soc. Am. A*, vol. 36, no. 8, pp. 1346–1360, Aug. 2019, ISSN: 1520-8532. DOI: 10.1364/JOSAA.36.001346.  PDF  PDF

- [4] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., “Spatio-angular fluorescence microscopy I. Basic theory,” *J. Opt. Soc. Am. A*, vol. 36, no. 8, pp. 1334–1345, Aug. 2019, ISSN: 1520-8532. DOI: 10.1364/JOSAA.36.001334.   
- [3] **Chandler, T.**, Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P. J., “Single-fluorophore orientation determination with multiview polarized illumination: Modeling and microscope design,” *Optics Express*, vol. 25, no. 25, pp. 1334–1345, Aug. 2017, ISSN: 1520-8532. DOI: 10.1364/OE.25.031309.    
- [2] Day, K. J., La Rivière, P. J., **Chandler, T.**, Bindokas, V. P., Ferrier, N. J., Glick, B. S., “Improved deconvolution of very weak confocal signals,” *F1000Research*, vol. 6, no. 787, pp. 1334–1345, Aug. 2017, ISSN: 1520-8532. DOI: 10.12688/f1000research.11773.1.     
- [1] Shechter, S. M., **Chandler, T.**, Skandari, M., Zalunardo, N., “Cost-effectiveness analysis of vascular access referral policies in CKD,” *American Journal of Kidney Diseases*, vol. 70, no. 3, pp. 368–376, Aug. 2017, ISSN: 1520-8532. DOI: 10.1053/j.ajkd.2017.04.020.     

---

## Patents

- [2] Eng, P., Issa, N., La Rivière, P.J., **Chandler, T.**, Brickman, J., Proskey, M. 2021 “Method and System for Mask Disinfection”, US#326860. Pending.
- [1] Shroff, H., Kumar, A., Mehta, S., La Rivière, P.J., Oldenbourg, R., Wu, Y., 2020/12/10 **Chandler, T.**, “Systems and methods for three-dimensional fluorescence polarization via multiview imaging”, US#16616891.

---

## Peer-Reviewed Presentations

- [11] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 09/2019 La Rivière, P.J., “3D and 4D computational imaging of molecular orientation with multiview polarized fluorescence microscopy,” Electronic Imaging Conference, Burlingame, CA. 20 minute invited talk presented by La Rivière, P.J.
- [10] Oldenbourg, R., **Chandler, T.**, Tran, M., Guo, M., Shroff, H., La Rivière, P.J., 10/2019 “Fast and comprehensive mapping of molecular orientation using multi-view polarized fluorescence microscopy,” EMBL Seeing is Believing, Heidelberg, DE. Poster presented by Oldenbourg, R.
- [9] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 09/2019 La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized illumination light-sheet dual-view microscope,” Junior Scientist Workshop on Biological Optical Microscopy, Janelia Research Campus, VA. 20 minute talk.
- [8] **Chandler, T.**, La Rivière, P.J., “Multipole spatio-angular fluorescence microscopy,” 06/2019 Optics Society of America, Mathematics in Imaging, Munich, DE. 12 minute talk.  
**Outstanding Student Presentation Award**

- [7] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 05/2019  
La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized  
illumination light-sheet dual-view microscope,” Frontiers in Imaging Science,  
Janelia Research Campus, VA. Poster.
- [6] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 04/2019  
La Rivière, P.J., “Spatio-angular fluorescence imaging with a polarized  
illumination light-sheet dual-view microscope,” Focus on Microscopy, London, UK.  
20 minute talk.
- [5] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 02/2019  
La Rivière, P.J., “Spatio-angular imaging with a polarized light sheet dual-view  
fluorescence microscope,” Advanced Imaging Methods, Berkeley, CA. Poster.
- [4] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 11/2018  
La Rivière, P.J., “Spatio-angular imaging with a polarized light sheet dual-view  
fluorescence microscope,” NSF Workshop on Enabling Biological Discovery  
through Innovations in Imaging and Computation, Woods Hole, MA. Poster.
- [3] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 06/2018  
La Rivière, P.J., “Spatio-angular restoration of fluorescence microscopy data,”  
Optics Society of America, Mathematics in Imaging, Orlando, FL. 12 minute talk.
- [2] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 06/2018  
La Rivière, P.J., “Spatio-angular restoration of fluorescence microscopy data,”  
Gordon Image Science Conference, Easton, MA. 15 minute talk and poster.
- [1] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 04/2018  
La Rivière, P.J., “Single-fluorophore orientation determination with multiview  
polarized illumination microscope,” IEEE International Symposium on Biomedical  
Imaging (ISBI), Washington, DC. Poster.

---

## Miscellaneous Presentations

- [9] “Anholonomy: falling cats, parallel parking, and polarized light,” 01/2020  
Graduate Program on Medical Physics Journal Club. 30 minute talk.
- [8] “Spatio-angular fluorescence microscopy,” 04/2019  
Graduate Program on Medical Physics Colloquium, Chicago, IL. 1 hour talk.
- [7] “Spatio-angular inverse problems in fluorescence microscopy,” 03/2019  
Inverse Problems in Imaging Seminar, Chicago, IL. 1 hour talk.
- [6] “DNA microscopy,” 03/2019  
Graduate Program on Medical Physics Journal Club. 30 minute talk.  
**Carl J. Vyborny Award for Best Journal Club Presentation**
- [5] “Are lenses necessary?” 03/2018  
Graduate Program on Medical Physics Journal Club. 30 minute talk.  
**Carl J. Vyborny Award for Best Journal Club Presentation**

- [4] “Mapping molecular order in living organisms using polarized light microscopy,” 10/2017 with Rudolf Oldenbourg, University of California, Berkeley. 1 hour talk.
  - [3] “Mapping molecular order in living organisms using polarized light microscopy,” 10/2017 with Rudolf Oldenbourg, SCIEN Colloquium, Stanford University. 1 hour talk.
  - [2] “Evaluating gambles using dynamics,” 04/2017  
Graduate Program on Medical Physics Journal Club. 30 minute talk.  
**Carl J. Vyborny Award for Best Journal Club Presentation**
  - [1] “Digital holography for radiation dosimetry,” 04/2016  
Graduate Program on Medical Physics Journal Club. 30 minute talk.
- 

## Research History

- [5] **Leslie Lab**, University of British Columbia 01/2021–  
Advisor: Sabrina Leslie
  - [4] **La Rivière Lab**, University of Chicago 09/2015–12/2020  
Advisor: Patrick La Rivière
  - [3] **Oldenbourg Lab**, Marine Biological Laboratory 09/2017–09/2018  
Advisor: Rudolf Oldenbourg
  - [2] **MRI Research Centre**, University of British Columbia 04/2014–09/2015  
Advisors: Alex MacKay & Carl Michal
  - [1] **Centre For Operations Excellence**, University of British Columbia 04/2013–  
09/2015  
Advisor: Steven Shechter
- 

## Employment History

- [2] **Kardium Inc.**, Burnaby, BC 09/2013–12/2013  
Junior Engineer
  - [1] **SRK Consulting Inc.**, Vancouver, BC 01/2012–04/2012  
Junior Engineer
- 

## Teaching

- [3] **Introduction to Medical Physics**, University of Chicago 2019  
Teaching Assistant  
Topics: Medical imaging and radiation therapy  
Rating: 4.7/5.0 from 11 students
- [2] **Medical Imaging 1**, University of Chicago 2017  
Teaching Assistant  
Topics: X-ray imaging, MRI, image restoration  
Rating: 5.0/5.0 from 5 students

- [1] **Mathematics For Medical Physics**, University of Chicago 2016  
 Teaching Assistant  
 Topics: Linear systems theory, stochastic processes, image reconstruction  
 Rating: 4.8/5.0 from 5 students

---

## Awards

- [12] Graduate Program on Medical Physics Best Dissertation Award \$50k 2021  
 [11] O'Brien–Hasten Research Collaboration Award \$25k 2019  
 [10] University of Chicago Graduate Council Travel Award \$600 2019  
 [9] University of Chicago Biological Sciences Division Travel Award \$500 2019  
 [8] University of Chicago Biological Sciences Division Graduate Fellowship \$3000 2016  
 [7] Eastern Irrigation District Graduate Scholarship \$2k 2014  
 [6] NSERC Undergraduate Research Award \$4k 2014  
 [5] NSERC Industrial Undergraduate Research Award \$4k 2013  
 [4] Interpipeline Discovery Scholarship \$2k 2011  
 [3] UBC President's Entrance Scholarship \$1.2k 2010  
 [2] Alexander Rutherford Scholarship \$2.2k 2010  
 [1] Junior Citizen of the Year, City of Brooks - 2010

---

## Professional Membership

- [4] The Optical Society of America (OSA) 2017–  
 [3] The International Society for Optics and Photonics (SPIE) 2016–  
 [2] The American Association of Physicists in Medicine (AAPM) 2015–2017  
 [1] Engineers & Geoscientists of British Columbia (EGBC) 2010–2016

---

## Reviewing

- [7] Journal of the Optical Society of America B 2021  
 [6] European Biophysical Journal 2019  
 [5] Optics Letters 2019–2021  
 [4] Nature Communications 2018–2019  
 [3] Optica 2018  
 [2] Optics Express 2018–2020  
 [1] Journal of the Optical Society of America A 2017

---

## Computing

**Top Language:** Python  
**Competent Languages:** C, C++, Bash, MATLAB  
**Familiar Languages:** R, Mathematica, HTML/CSS  
**Tools:** GNU Emacs, L<sup>A</sup>T<sub>E</sub>X, git, VTK, ImageJ

## Other Activities

Ultramarathon running

12 races  $\geq$  26.2 miles

SCUBA diving

15 open water dives,  $\sim$ 600 minutes underwater

Apiculture