TALON CHANDLER
CURRICULUM VITÆ

Biographical Information

Born:	June 24, 1993 in Calgary, Alberta
Citizenship:	Canada
Address:	655 Kansas Street San Francisco, CA 94107
Phone:	(415) 416-2831
Email:	talonchandler@talonchandler.com
Website:	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

[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

Peer-Reviewed Publications

[9] ***Chandler, Talon**, *Guo, M., Su, Y., Chen, J., Wu, Y., Liu, J., Agashe, A., Fischer, R. S., Mehta, S. B., Kumar, A., Baskin, T. I., Jaumouillé, V., Liu, H., Swaminathan, V., Nain, A., Oldenbourg, R., La Rivière, P. J., Shroff, H., "Three-dimensional spatio-angular fluorescence microscopy with a polarized dual-view inverted selective-plane illumination microscope (pol-diSPIM)," *bioRxiv preprint*, Mar. 2024.

[8] *Ivanov, I. E., *Hirata-Miyasaki, E., ***Chandler, Talon**, *Kovilakam, R. C., Liu, Z., Liu, C., Leonetti, M. D., Huang, B., Mehta, S. B., "Mantis: High-throughput 4D imaging and analysis of the molecular and physical architecture of cells," *bioRxiv preprint*, Dec. 2023. DOI: 10.1101/2023.12.19.572435.

[7] DeBrosse, H., **Chandler, T.**, Meng, L. J., La Rivière, P. J., "Joint estimation of metal density and attenuation maps with pencil beam XFET," *IEEE Transactions on Radiation and Plasma Medical Sciences*, vol. 7, no. 2, pp. 191–202, Feb. 2023. DOI: 10.1109/trpms.2022.3201151.

[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.

[5] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., "Spatio-angular fluorescence microscopy II. Paraxial $4f$ imaging," *Journal of the Optical Society of America A*, vol. 36, no. 8, pp. 1346–1360, Aug. 2019. DOI: 10.1364/JOSAA.36.001346.

[4] **Chandler, T.**, Shroff, H., Oldenbourg, R., La Rivière, P. J., "Spatio-angular fluorescence microscopy I. Basic theory," *Journal of the Optical Society of America A*, vol. 36, no. 8, pp. 1334–1345, Aug. 2019. 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, 2017. 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, 2017. 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, 2017. DOI: 10.1053/j.ajkd.2017.04.020.

Peer-Reviewed Presentations

[12] Sundarraman, D., **Chandler, T.**, Mehta, S. B., Balla, K., "Mapping in toto immune cell dynamics during viral infection in zebrafish," American Physical Society Meeting, Minneapolis, MN. 15 minute talk presented by Sundarraman, D. — 03/2024

[11] **Chandler, T.**, Ivanov, I., Hirata-Miyasaki, E., Pradeep, S., Liu, Z., Foltz, C., Mehta, S. B., "Physics-informed computation of label-free and fluorescence microscopy data improves contrast, information content, and biophysical interpretation," ASCB Cell Biology, Boston, MA. 15 minute talk. — 12/2023

[10] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 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. — 09/2019

[9] Oldenbourg, R., **Chandler, T.**, Tran, M., Guo, M., Shroff, H., La Rivière, P.J., "Fast and comprehensive mapping of molecular orientation using multi-view polarized fluorescence microscopy," EMBL Seeing is Believing, Heidelberg, DE. Poster presented by Oldenbourg, R. — 10/2019

[8] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 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. — 09/2019

[7] **Chandler, T.**, La Rivière, P.J.,"Multipole spatio-angular fluorescence microscopy," Optics Society of America, Mathematics in Imaging, Munich, DE. 12 minute talk. **Outstanding Student Presentation Award** — 06/2019

[6] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 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. 05/2019

[5] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 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. 04/2019

[4] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., "Spatio-angular imaging with a polarized light sheet dual-view fluorescence microscope," Advanced Imaging Methods, Berkeley, CA. Poster. 02/2019

[3] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., 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. 11/2018

[2] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., "Spatio-angular restoration of fluorescence microscopy data," Optics Society of America, Mathematics in Imaging, Orlando, FL. 12 minute talk. 06/2018

[1] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., "Spatio-angular restoration of fluorescence microscopy data," Gordon Image Science Conference, Easton, MA. 15 minute talk and poster. 06/2018

[0] **Chandler, T.**, Guo, M., Kumar, A., Mehta, S., Shroff, H., Oldenbourg, R., La Rivière, P.J., "Single-fluorophore orientation determination with multiview polarized illumination microscope," IEEE International Symposium on Biomedical Imaging (ISBI), Washington, DC. Poster. 04/2018

Miscellaneous Presentations

[11] "Spatio-angular microscopy," 01/2024
Berkeley Photobears optics club. 1 hour talk.

[10] "Immediate computational microscopy," 09/2023
Chan Zuckerberg Initiative make-a-thon tech talks. 30 minute talk.

[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

[6] **Computational Microscopy Platform**, Chan Zuckerberg Biohub 01/2021–11/2021
Advisor: Shalin Mehta

[5] **Leslie Lab**, University of British Columbia 01/2021–11/2021
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

[5] **Chan Zuckerberg Biohub**, San Francisco, CA 03/2022–
Research and Development Engineer II

[4] **University of British Columbia**, Vancouver, BC 01/2021–11/2021
Postdoctoral Scholar

[3] **University of Chicago**, Chicago, IL 09/2015–12/2020
Graduate Research Assistant

[2] **Kardium Inc.**, Burnaby, BC 09/2013–12/2013
Junior Engineer

[1] **SRK Consulting Inc.**, Vancouver, BC 01/2012–04/2012
Junior Engineer

Patents

[2] Eng, P., Issa, N., La Rivière, P.J., **Chandler, T.**, Brickman, J., Proskey, M. "Method and System for Mask Disinfection", US#326860. Pending. 2021

[1] Shroff, H., Kumar, A., Mehta, S., La Rivière, P.J., Oldenbourg, R., Wu, Y., **Chandler, T.**, "Systems and methods for three-dimensional fluorescence polarization via multiview imaging", US#16616891. 12/2020

Teaching

[4] **Analytical and Quantitative Light Microscopy (AQLM)**, 2023
Marine Biological Laboratory,
Teaching Assistant

[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	$500	2021
[11]	O'Brien–Hasten Research Collaboration Award	$1.5k	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	$30k	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	$1.5k	2010
[2]	Alexander Rutherford Scholarship	$2.5k	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

19 total reviews

[8]	Frontiers in Physics	2023
[7]	Journal of the Optical Society of America B	2021
[6]	European Biophysical Journal	2019
[5]	Optics Letters	2019–2021
[4]	Nature Communications	2018–2023
[3]	Optica	2018
[2]	Optics Express	2018–2023
[1]	Journal of the Optical Society of America A	2017–2022

Computing

Top Language:	Python
Competent Languages:	C, C++, Bash, MATLAB
Familiar Languages:	R, Mathematica, HTML/CSS
Tools:	GNU Emacs, LaTeX, git, VTK, ImageJ, SLURM

Other Activities

Ultramarathon running	12 races $\geq$ 26.2 miles
SCUBA diving	15 open water dives, $\sim$600 minutes underwater
Apiculture	