

Thanh-an Pham

Personal Information	Address: BM 4140, EPFL, CH-1015 Lausanne Date of birth: 2 April 1992 E-mail: thanh-an.pham@epfl.ch Homepage: https://thanhanpham.github.io/ Google Scholar ID: https://scholar.google.com/citations?user=_ZJ9X0QAAAAJ&hl=en Orcid ID: 0000-0001-6231-2569	
Education	EPFL , Biomedical Imaging Group • PhD, title: “Nonlinear Inverse Problems in Quantitative Phase Imaging” • Advisor: Prof. Michael Unser EPFL • MSc, Bioengineering EPFL • BSc, Life Science and Technologies	July 2017 - Apr. 2022 (expected date) Sept. 2013 - Apr. 2016 Sept. 2010 - Aug. 2013
Honors and Awards	Best Student Paper Award, ISBI’21 18th IEEE International Symposium on Biomedical Imaging, Nice, French Republic Best Student Paper Award, ISBI’19 16th IEEE International Symposium on Biomedical Imaging, Venice, Italian Republic	Apr. 2021 Apr. 2019
Internships	UNIL , Department of Fundamental Neurosciences • Civil service, astrocyte-associated calcium imaging • Advisor: Prof. Andrea Volterra EPFL , Laboratory of Geographic Information Systems • Civil service, soundscape and health indicators • Advisor: Prof. Francois Golay Advanced Digital Science Center (Singapore) • Industry intern, monitoring mental fatigue with EEG signals	Aug. - Nov. 2018 June - Dec. 2016 June - July 2015
Publications	Journal (*: equal contributions) 1. T. Hong*, T.-a. Pham* , E. Treister, and M. Unser, “Diffraction tomography with Helmholtz equation: Efficient and robust multigrid based solver,” 2021, Under review. https://arxiv.org/pdf/2107.03679.pdf 2. J. Griffie, T.-a. Pham , C. Sieben, R. Lang, V. Cevher, S. Holden, M. Unser, S. Manley, and D. Sage, “Virtual-SMLM, a virtual environment for real-time interactive SMLM acquisition,” 2020, Under review. https://www.biorxiv.org/content/10.1101/2020.03.05.967893v1.full.pdf 3. T.-a. Pham , E. Soubies, F. Soulez, and M. Unser, “Optical diffraction tomography from single-molecule localization microscopy,” <i>Optics Communications</i> , vol. 499, p. 127290, November 15 2021, https://www.sciencedirect.com/science/article/pii/S0030401821005393 4. F. Yang, T.-a. Pham , N. Brandenberg, M. P. Lutolf, J. Ma, and M. Unser, “Robust Phase Unwrapping via Deep Image Prior for Quantitative Phase Imaging,” <i>IEEE Transactions on Image Processing</i> , vol. 30, pp. 7025–7037, July 30 2021, https://ieeexplore.ieee.org/document/9502550 5. F. Yang, T.-a. Pham , H. Gupta, M. Unser, and J. Ma, “Deep-learning projector for optical diffraction tomography,” <i>Optics Express</i> , vol. 28, no. 3, pp. 3905–3921, February 3, 2020, http://bigwww.epfl.ch/publications/yang2001.html 6. A. Ayoub, T.-a. Pham , J. Lim, M. Unser, and D. Psaltis, “A method for assessing the fidelity of optical diffraction tomography reconstruction methods using structured illumination,” <i>Optics Communications</i> , vol. 454, no. 124486, pp. 1–6, January 1, 2020, http://bigwww.epfl.ch/publications/ayoub2001.html	

Publications
(Cont'd)

7. **T.-a. Pham**, E. Soubies, A. Ayoub, J. Lim, D. Psaltis, and M. Unser, “Three-dimensional optical diffraction tomography with Lippmann-Schwinger model,” *IEEE Transactions on Computational Imaging*, vol. 6, pp. 727–738, 2020, <http://bigwww.epfl.ch/publications/pham2002.html>
8. E. Soubies, F. Soulez, M. McCann, **T.-a. Pham**, L. Donati, T. Debarre, D. Sage, and M. Unser, “Pocket guide to solve inverse problems with GlobalBioIm,” *Inverse Problems*, vol. 35, no. 10, pp. 1–20, October 2019, paper no. 104006 <http://bigwww.epfl.ch/publications/soubies1904.html>
9. D. Sage*, **T.-a. Pham***, H. Babcock, T. Lukes, T. Pengo, J. Chao, R. Velmurugan, A. Herbert, A. Agrawal, S. Colabrese, A. Wheeler, A. Archetti, B. Rieger, R. Ober, G. Hagen, J.-B. Sibarita, J. Ries, R. Henriques, M. Unser, and S. Holden*, “Super-resolution fight club: Assessment of 2D and 3D single-molecule localization microscopy software,” *Nature Methods—Techniques for Life Scientists and Chemists*, vol. 16, no. 5, pp. 387–395, May 2019, <http://bigwww.epfl.ch/publications/sage1903.html>
10. **T.-a. Pham**, E. Soubies, A. Goy, J. Lim, F. Soulez, D. Psaltis, and M. Unser, “Versatile reconstruction framework for diffraction tomography with intensity measurements and multiple scattering,” *Optics Express*, vol. 26, no. 3, pp. 2749–2763, February 5, 2018, <http://bigwww.epfl.ch/publications/pham1801.html>
11. E. Soubies*, **T.-a. Pham***, and M. Unser, “Efficient inversion of multiple-scattering model for optical diffraction tomography,” *Optics Express*, vol. 25, no. 8, pp. 21 786–21 800, September 4, 2017, <http://bigwww.epfl.ch/publications/soubies1701.html>

Conference, symposium and workshops

1. **T.-a. Pham**, E. Soubies, F. Soulez, and M. Unser, “Diffraction tomography from single-molecule localization microscopy: Numerical feasibility,” in *Proceedings of the Eighteenth IEEE International Symposium on Biomedical Imaging (ISBI'21)*, Nice, French Republic, April 13-16, 2021, pp. 854–857, **Best student paper award**
2. Q. Denoyelle, **T.-a. Pham**, P. del Aguila Pla, D. Sage, and M. Unser, “Optimal-transport-based metric for SMLM,” in *Proceedings of the Eighteenth IEEE International Symposium on Biomedical Imaging (ISBI'21)*, Nice, French Republic, April 13-16, 2021, pp. 797–801
3. **T.-a. Pham**, E. Soubies, A. Ayoub, D. Psaltis, and M. Unser, “Adaptive regularization for three-dimensional optical diffraction tomography,” in *Proceedings of the Seventeenth IEEE International Symposium on Biomedical Imaging (ISBI'20)*, Iowa City IA, USA, April 5-7, 2020, pp. 182–186, [nominated for best paper award.]
4. **T.-a. Pham**, E. Soubies, D. Sage, and M. Unser, “Closed-form expression of the Fourier ring-correlation for single-molecule localization microscopy,” in *Proceedings of the Sixteenth IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'19)*, Venice, Italian Republic, April 8-11, 2019, pp. 321–324, **Best student paper award**
5. **T.-a. Pham**, E. Soubies, J. Lim, A. Goy, F. Soulez, D. Psaltis, and M. Unser, “Phaseless diffraction tomography with regularized beam propagation,” in *Proceedings of the Fifteenth IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'18)*, Washington DC, USA, April 4-7, 2018, pp. 1268–1271
6. L. Donati, E. Soubies, **T.-a. Pham**, and M. Unser, “User-friendly building of reconstruction algorithms for solving inverse problems,” in *Proceedings of the Seventeenth IEEE International Symposium on Biomedical Imaging (ISBI'20)*, Iowa City IA, USA, April 5-7, 2020, p. 1307
7. **T.-a. Pham**, N. Brandenburg, S. Hoelzel, B. Rappaz, M. Unser, M. Lütolf, and D. Sage, “Quantitative image-analysis of organoids with high-throughput digital holography microscopy,” in *Proceedings of the 2020 Quantitative BioImaging Conference (QBI'20)*, Oxford, United Kingdom, January 6-9, 2020, paper no. 365
8. D. Sage, **T.-a. Pham**, and M. Unser, “3D single molecule localization microscopy: Key outcomes of the software benchmarking,” in *Proceedings of the Sixteenth IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'19)*, Venice, Italian Republic, April 8-11, 2019, p. 610
9. **T.-a. Pham**, D. Sage, and S. Holden, “Developments of the ongoing 3D SMLM software challenge,” in *Seventh Single Molecule Localization Microscopy Symposium (SMLMS'17)*, London, United Kingdom, August 30-September 1, 2017

Teaching

Head Teaching Assistant

Sept. 2017 - Aug. 2021

- Image Processing I and II, EPFL

Teaching Assistant (student)

Sept. 2012 - Aug. 2015

- Physics I, II and Analysis I, II & IV for Life Science and Technologies, EPFL
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Supervised students	Master Thesis (full time, 4 months)	
	Yuxuan Long	Fall 2021
	Computational Methods for Dynamic Fourier Ptychography	
	Internship (full time, 6 months)	
	Paul Margain	Spring 2021
	High-resolution reconstruction in single-particle cryo-EM with a multiscale joint refinement scheme	
	Master Semester Project (16-24 hours per week, 4 months)	
	Mickael Gindroz	Spring 2021
	Differentiable Approximation of Hessian-Schatten Regularization for Image Reconstruction	
	Aiday Marlen	Spring 2021
	Using regularization to reduce the number of projection angles in optical projection tomography	
	Paul Margain	Fall 2020
	Deep learning for 3D particle field imaging	
	Louis-Nicolas Douce	Spring 2020
	Slice-based Dictionary Learning for Computed Tomography	
Mohamed Bahroun	Spring 2020	
Image reconstruction for optical diffraction tomography		
J�rome Savary	Fall 2019	
Phase Unwrapping with Deep Learning		
Elias Gajo	Fall 2019	
Off-the-grid algorithm in ImageJ for 3D single-molecule localization microscopy		
Amandine Evard	Spring 2019	
Off-the-grid algorithm in ImageJ for 3D single-molecule localization microscopy		
Luca Fetz	Spring 2019	
Timing correction for slow-scanning biomedical imaging devices		
Cl�lie De Witasse	Spring 2019	
Dictionary Learning for Limited Angle Computed Tomography		
C�dric Schumacher	Fall 2018	
Improving depth-of-field by deconvolution		

Review Activities	Optica, Optics Express, Journal of the Optical Society of America A, Optics Letters, Transactions on Computational Imaging, Transactions on Microwave Theory and Techniques, Nature Methods, Nature Communications, International Symposium on Biomedical Imaging (ISBI)
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Personal Skills	Languages
	1. French: Native
	2. English: Fluent
	3. German: Intermediate

Digital Competences

1. Programming Language: C/C++, Python (including PyTorch), JAVA, MATLAB
2. Others: LaTeX, HTML, ImageJ