

NICOLAS C. PÉGARD, PH.D.

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EDUCATION

Princeton University, Princeton, NJ.	2009 - 2014
Ph.D. in Electrical Engineering.	2014
Thesis : Computational methods for microfluidic microscopy and phase-space imaging.	
M.A. in Electrical Engineering.	2011
École Polytechnique, Palaiseau, France.	2006 - 2010
Diplôme de l'école Polytechnique final degree.	2010
M.Eng. Diplôme d'ingénieur. <i>Majors: quantum physics, optoelectronics.</i>	2009
B.S. <i>Majors: mathematics, solid state physics.</i>	2008
Classes Préparatoires, Louis-le-Grand, Paris, France	2003 - 2006
Intensive program to prepare the entrance examination for the Grandes Écoles.	
<i>Mathematics & Physics track, minor in computer science.</i>	

RESEARCH EXPERIENCE

University of California Berkeley, Berkeley, CA.	2014 - Present
<i>Postdoctoral Scholar.</i> Advisors : Prof. Hillel Adesnik (MCB) - Prof. Laura Waller (EECS). Departments of Molecular & Cell Biology, and Electrical Engineering & Computer Science.	
Developed 3D-Scanless Holographic Optogenetics with Temporal focusing (3D-SHOT) : a two-photon holographic method for simultaneous photo-activation of custom neuron ensembles in 3D, with high spatial and temporal resolution.	
Developed Compressive Light Field Microscopy (CLFM) : a computational method that enables 3D quantitative measurement of neural activity in scattering tissue without reconstructing images.	
Research interests in computational optics and instrumentation for optogenetic photostimulation and digital measurement of neural activity. Broader interests in brain-machine interfacing, holography and nonlinear methods for imaging, detection and photo-excitation through scattering tissue, and photo-lithography.	
Princeton University, Princeton, NJ.	2010 - 2014
<i>Ph.D.Candidate.</i> Advisor : Prof. Jason W. Fleischer. Department of Electrical Engineering.	
Developed microfluidic microscopy techniques for 3D cell tomography and phase imaging.	
Developed photon capture models for photovoltaic devices with patterned surfaces.	
Research interests in holographic storage optimization and nonlinear light-matter interaction.	
Julius-Maximilian University, Würzburg, Germany.	2009
<i>Research intern.</i> Advisor : Prof. Charles Gould. Department of Applied Physics (EP3).	
Built (Ga,Mn)As devices to study anisotropic thermopower in diluted magnetic semiconductors.	
Undergraduate research projects, École Polytechnique, Palaiseau, France.	2003 - 2009
“A model of the dynamics of liquid water accumulation on the cathode of a PEM-Fuel-Cell.”	2008
In partnership with Helion (AREVA). Advisor : Prof. Yvan Bonnassieux.	
“a-Si-H photo-expansion & consequences of the Staebler-Wronski effect.”	2008
Laboratory of Physics of Interfaces (LPICM). Advisor : Prof. Pere. Roca i Cabarrocas.	
“Characterization of plasma properties using a Langmuir plasma probe.”	2004
Plasma Physics Laboratory. Advisor : Prof. Jean-Marcel. Rax.	

TEACHING EXPERIENCE

Guest lecturer, University of California, Berkeley. Introduction to Optical Engineering, EE 118.	2014 - Present 2014
Private tutor, Lessons in physics and mathematics.	2013 - Present
Teaching assistant, Princeton University. Algorithms and Data Structures, COS 226.	2010 - 2013 2013
Logic Design & VLSI, ELE 206.	2012
Introduction to Engineering, EGR 191.	2012
Optoelectronics, ELE 453.	2010
Undergraduate Research mentor, Princeton University, <i>MIRTHE's summer program</i> , undergraduate level research internships.	2011 - 2013

FUNDING AND AWARDS

Harold W. Dodds Honorific Fellowship, Princeton University.	2014
Engineering Department's outstanding teaching assistant award, Princeton University.	2010
Gordon Y.S. Wu fellowship for Engineering, Princeton University.	2009
Outstanding leadership and commitment to the student body award, École Polytechnique.	2009
Carnot fellowship for students pursuing Ph.D. programs abroad, Carnot foundation.	2008

OTHER WORK EXPERIENCE

Optofluidic engineering research consultant, Nodexus INC. Berkeley, CA.	2016
Blue-collar internship (Carpentry), Far Eastern Federal University, Vladivostok, Russia.	2008
Junior navigation officer, Midshipman rank, (M649 Persée) French navy, Brest Arsenal.	2006
Assistant teacher in music theory, Amiens, France.	2005

SERVICE TO THE COMMUNITY - RESEARCH AND EDUCATION

Reviewer, <i>Applied Optics</i> , <i>JOSA.A</i> , <i>Biomedical Optics Express</i> , <i>Optica</i> , <i>Optics letters</i> .	2012 - Present
Chair, <i>Optical Biosensors Technical Group (OSA)</i> .	2017-2020
Session chair, <i>Multidimensional Microscopy conference (SPIE Photonics West)</i> .	2017
Session chair, <i>Advanced Imaging Methods (AIM) Workshop, University of California Berkeley</i> .	2017
Reviewer (Grant), <i>OSA Special Program Grants</i> .	2016
Reviewer (Grant), <i>National Natural Science Foundation of China (NSFC)</i> .	2016
Reviewer (Grant), <i>Hong Kong Research Grant Council (RGC)</i> .	2016
Volunteer scientist, <i>Bay Area Scientists In Schools (BASIS)</i> .	2014

SKILLS

French (native speaker), English (fluent), German (fluent), Russian (conversational).
Programming languages : Matlab, Caml, Java, Labview, Visual Basic, C (Arduino), Python, PHP.
Markup languages : HTML, L^AT_EX.
French offshore boating license.
US private pilot license (Single engine, VFR, land).

EXTRACURRICULAR ACTIVITIES

Blues dancing.	2015 - Present
Wind ensemble, Princeton University.	2009 - 2010
Amateur Rugby player, École Polytechnique.	2006 - 2009
Big Band, founding member and conductor, École Polytechnique.	2006 - 2009
Trumpet player (various Big Band & Jazz ensembles).	2000 - 2006