

# HAYATO IKOMA

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## AFFILIATION

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Computational Imaging Group  
Department of Electrical Engineering  
Stanford University

## TECHNICAL STRENGTHS

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<b>Programming skills</b>	Python, Julia, JavaScript, C++, MATLAB
<b>Academic skills</b>	Image processing, Fourier optics, Convolutional neural net, etc.
<b>Language</b>	English (fluent), Japanese (native)

## EDUCATION

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**Stanford University, USA** Sep. 2015 - Jun. 2020 (expected)  
*Ph.D. candidate, Electrical Engineering*

Project: Computational imaging for fluorescence optical microscopy  
Supervisor: Gordon Wetzstein

**École Normale Supérieure de Cachan, France** Sep. 2014 - Sep. 2015  
*M.S., Mathematics, Computer Vision, Machine Learning (MVA)* *Très bien*

Project: Wavefront estimation for next-generation satellite telescope  
Supervisor: Jean-Michel Morel (Center of mathematics and their applications (CMLA))

**Massachusetts Institute of Technology, USA** Sep. 2012 - Jun. 2014  
*M.S., Media Arts and Sciences (MIT Media Lab)* *GPA: 4.9/5.0*

Project: Development of fluorescence unmixing algorithm  
Supervisor: Ramesh Raskar

**Kyoto University** Apr. 2010 - Mar. 2012  
*M.S., Biophysics* *GPA: 4.00/4.00*

Project: Dynamics of actin bundles in fish epidermal keratocytes  
Supervisor: Yoshinori Fujiyoshi

**University of Tokyo** Apr. 2006 - Mar. 2010  
*B.S., Materials Engineering* *GPA: 3.95/4.00 (major), 3.60/4.00 (overall)*

Project: Electrical property measurement of germanium crystal based on rapid melt growth  
Supervisor: Akira Toriumi, Koji Kita, Kosuke Nagashio

## WORKING EXPERIENCE

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**Google VR (Google Inc.)** Jun. 2016 - Sep. 2016  
*Software engineering intern*

Project: Development of efficient image processing for head-mount displays

## TEACHING EXPERIENCE

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### EE 267: Virtual Reality, Stanford University

Spring 2017, 2018

*Teaching assistant*

Implementation of homework starter and solution codes (JavaScript/WebGL)

Website: <https://stanford.edu/class/ee267/>

## SCHOLARSHIP

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### Jacques Hadamard Mathematics Foundation

Sep. 2014 - Jun. 2015

Scholarship for non-French students studying mathematics (EUR 1000/month)

### Funai Overseas Scholarship

Sep. 2012 - May. 2014

Scholarship for outstanding students in Japan to study abroad at graduate school (USD 30,000/yr, Tuition fee, health insurance, etc.)

### Japan Student Services Organization

Apr. 2010 - Mar. 2012

Exemption from repayment of the scholarship loan program due to the excellence in the masters research (JPY 100,000/yr)

### Iwadare scholarship

Apr. 2011 - Mar. 2012

Scholarship for outstanding graduate students in Japan (JPY 480,000/yr)

### Nakajima Foundation

2012

Declined due to the period overlap with Funai Overseas Scholarship

### Takenaka Overseas Scholarship

2012

Declined due to the period overlap with Funai Overseas Scholarship

## RESEARCH PUBLICATION

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### Journal Articles

- [1] Hayato Ikoma, Michael Broxton, Takamasa Kudo, and Gordon Wetzstein. “A convex 3D deconvolution algorithm for low photon count fluorescence imaging”. In: *Scientific Reports* 8.1 (2018), p. 11489. DOI: <https://doi.org/10.1038/s41598-018-29768-x>.
- [2] Hayato Ikoma, Barmak Heshmat, Gordon Wetzstein, and Ramesh Raskar. “Attenuation-corrected fluorescence spectra unmixing for spectroscopy and microscopy”. In: *Optics express* 22.16 (2014), pp. 19469–19483. DOI: <https://doi.org/10.1364/OE.22.019469>. URL: <http://www.opticsexpress.org/abstract.cfm?URI=oe-22-16-19469>.
- [3] Makoto Goda, Mihoko Ohata, Hayato Ikoma, Yoshinori Fujiyoshi, Masazumi Sugimoto, and Ryozo Fujii. “Integumental reddish-violet coloration owing to novel dichromatic chromatophores in the teleost fish, *Pseudochromis diadema*”. In: *Pigment cell & melanoma research* 24.4 (2011), pp. 614–617. DOI: <https://doi.org/10.1111/j.1755-148X.2011.00861.x>.

### Conference Proceedings

- [1] Barmak Heshmat, Hayato Ikoma, Ik Hyun Lee, Krishna Rastogi, and Ramesh Raskar. “Computational hair quality categorization in lower magnifications”. In: *Biomedical Applications of Light Scattering IX*. Vol. 9333. International Society for Optics and Photonics. San Francisco, USA, 2015, 93330Z. DOI: <https://doi.org/10.1117/12.2078027>.

- [2] Hayato Ikoma, Barmak Heshmat, Gordon Wetzstein, and Ramesh Raskar. “Nonlinear fluorescence spectra unmixing”. In: *CLEO*. Optical Society of America. San Jose, USA, 2014, JTh2A–9. DOI: [https://doi.org/10.1364/CLEO\\_AT.2014.JTh2A.9](https://doi.org/10.1364/CLEO_AT.2014.JTh2A.9).
- [3] Achuta Kadambi, Hayato Ikoma, Xing Lin, Gordon Wetzstein, and Ramesh Raskar. “Subsurface enhancement through sparse representations of multispectral direct/global decomposition”. In: *COSI (Computational Optical Sensing and Imaging)*. Optical Society of America. Arlington, USA, 2013, CTh1B–4. DOI: <https://doi.org/10.1364/COSI.2013.CTh1B.4>.
- [4] Hayato Ikoma, Jean-Marc Delvit, Christophe Latry, Carole Thiebaud, and Jean-Michel Morel. “Phase Diversity: Estimation of an Optical Wavefront from Landscape Images”. In: *Applied Inverse Problems*, Helsinki, Finland, May 2015.

### **Lectures, Workshops, Talks, etc.**

- [1] Hayato Ikoma. *A convex 3D deconvolution algorithm for low photon count fluorescence imaging*. Olympus Corporation, Tokyo, Japan, July 2018.
- [2] Hayato Ikoma, Robert Konrad, Nitish Padmanaban, and Gordon Wetzstein. *Build your own VR system: an introduction to VR displays and cameras for hobbyists and educators*. Electronic Imaging Short Courses, San Francisco, USA, Jan. 2018.
- [3] Gordon Wetzstein, Robert Konrad, Nitish Padmanaban, and Hayato Ikoma. *Build your own VR system: an introduction to VR displays and cameras for hobbyists and educators*. SIGGRAPH, Aug. 2017. DOI: <https://doi.org/10.1145/3084873.3084928>.