# JuneHo Hwang

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## Education

**Cornell University** Ph.D. Electrical and Computer Engineering, GPA: 4.05/4.3 *2018-2022(expected)*
Advisor: Prof. Amit Lal, Robert M. Scharf 1977 Professor of ECE
Field: Machine Learning, Scientific Computation, Numerical Analysis, MEMS

- C++ programming for acoustic wave simulation
- Machine learning for nano-fabrication metrology and optimization
- 3D printer analysis through acoustic signals and machine learning
- NanoScale fabrication of hardware accelerator at CNF

**Cornell University** M.S. Applied Physics, GPA: 3.65/4.3 *2012*
Advisor: Prof. Amit Lal, Robert M. Scharf 1977 Professor of ECE
Field: Computational Science, Numerical Analysis, MEMS
Thesis: Miniature Particle Accelerator Simulation, Design And Fabrication

- DARPA AXIS Program :
  Fabrication of portable X-ray source for medical application
  Implemented all stages of integrated miniature particle actuator, from computer simulation, layout, Op-amp circuitry design, to device fabrication and testing in vacuum system as part of the DARPA AXIS program

**Yonsei University** B.S. Physics, GPA: 3.83/4.5 *2010*

- Team leader at Yonsei Student Venture Center for making search engine

## Technical skills

**Programming skills**

- Programming languages: Python, C#, Java, C++, Visual Basic, Fortran, Verilog
- Web development: PHP, Javascript, CSS, HTML
- Database languages: SQL, ADOdb, Microsoft Access
- Simulation and mathematical softwares: Comsol, OnScale, Opera, Simion, Matlab, Mathematica

**NanoScale device fabrication skills**

- Photolithography, Heidelberg mask writer, ASML(250nm) DUV stepper, ABM contact aligner, DRIE, thin film deposition, furnace processing, CMP, dicing, SEM

**Language skills**

- Korean (native), English (fluent), French (intermediate), Spanish (elementary)

## Experiences

**NLP Software Engineer** Seoul, Korea
*2013 – 2015*

- Natural language processing for English to Korean machine translation.
- Machine Translation With the Princeton Wordnet Thesaurus with a patent accepted in 2016. Conversion of Standford English parser to Java.
- Korean syntax and morphological analysis tool consisting 30,000 lines of coding in Visual Basic.

**Software Engineer** Seoul, Korea
*2015 – 2017*

- iOS and Android applications development with Unity using C# and JSON.

## Awards

- 2012 : Irwin Jacobs Fellowship, Cornell University
- 2009 : Gold Prize in startup contest for developing an English-Korean search engine, Seoul Regional Small & Medium Business Administration

## Publications

- **J. Hwang**, B. Davaji, J. Kuo, and A. Lal, "Focusing Profiles of Planar Si-$SiO_2$ Metamaterial GHz Frequency Ultrasonic Lens," in IEEE International Ultrasonics Symposium, IUS, 2021, pp. 1–4.
- **J. Hwang**, B. Davaji, J. Kuo, and A. Lal, "Planar Lens for GHz Fourier Ultrasonics," in IEEE International Ultrasonics Symposium, IUS, Sep. 2020, pp. 1–4.
- **J. Hwang**, J. Kuo, and A. Lal, "Planar GHz Ultrasonic Lens for Fourier Ultrasonics," in IEEE International Ultrasonics Symposium, IUS, Oct. 2019, pp. 1735–1738.

## Conferences

- Hwang, J.; Ardanuç, S.; Lal A., "Planar Electronic Picosecond Electron Pulser," The 57th International Conference on Electron, Ion, and Photon Beam Technology & Nanofabrication (EIPBN), 28-31 May 2013.
- Hwang, J.; Shi Y.; Lal A., "Towards an RF Planar Waveguide Electron LINAC," The 57th International Conference on Electron, Ion, and Photon Beam Technology & Nanofabrication (EIPBN), 28-31 May 2013.

## Patents

- Lal, A.; Shi, Y.; Ardanuc, S.; Hwang, J.; Rana, F., " Generation and acceleration of charged particles using compact devices and systems," Application No.: PCT/US2013/065549, October 17, 2013.
- Hwang, J., "Machine translation method and apparatus," Korea patent no: 1015899480000, January 1, 2016.