

# NATANIEL RUIZ

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## EDUCATION

**Georgia Institute of Technology**, Atlanta, Georgia GPA : 3.90 / 4.0 September 2016 - December 2017  
Master of Science in Computer Science (Specializing in Machine Learning)

**Ecole Polytechnique**, Paris, France Graduate GPA : 3.86 / 4.0 June 2013 - May 2016  
N°1 Ranked French Grande École in Science and Technology  
Bachelor of Science & Master of Engineering (Majoring in Data Science)

**Lycée Jean-Baptiste Say**, Paris, France September 2011 – June 2013  
Two year intensive program of preparation in Mathematics and Physics for the nationwide entrance examinations to top French Engineering Schools. N°1 Ranked Program in Physics, Technology and Industrial Science.

- One of thirteen students accepted to Ecole Polytechnique out of two thousand from my academic track.

### Awards:

- Awarded a full merit-based scholarship by the French Government, maintained for five years.
- Outstanding Leadership Award by Ecole Polytechnique for the creation of the first TEDx Ecole Polytechnique conference.

### Relevant Papers:

Fine-Grained Head Pose Estimation Without Keypoints (accepted to **CVPR Workshop 2018**) [1]  
Learning to Localize and Align Fine-Grained Actions to Sparse Instructions (submitted to **ECCV 2018**) [2]  
Connecting Gaze, Scene and Attention (submitted to **ECCV 2018**) [3]  
Detecting Gaze Towards Eyes in Natural Social Interactions and Its Use in Child Assessment (accepted to **IMWUT and Ubicomp 2017**) [4]  
Dockeface: an Easy to Install and Use Faster R-CNN Face Detector in a Docker Container (published on arxiv.org) [5]

### Relevant Projects:

#### Deep Learning Head Pose Estimation using PyTorch

- Released an accurate and easy to use head pose estimation network using PyTorch along with pre-trained models. [1]

#### Android-YOLO

- Released an open source Real-Time Object Detection deep learning system on an Android device using the TensorFlow library.

#### Dockeface

- Released a very accurate, open source, easy to use deep learning Face Detection application using a Docker software container. [5]

#### Extended GTEA Gaze+ Dataset

- Co-lead the annotation of the largest egocentric vision action recognition dataset. [6]

## WORK EXPERIENCE

**NEC Laboratories America, Inc**, Cupertino, CA February 2018 - Present  
*Research Assistant (Intern)*

- Working under **Dr. Manmohan Chandraker** on topics related to self-driving car perception, visual data simulation and reinforcement learning.

**Georgia Institute of Technology**, Atlanta, GA December 2016 – December 2017  
*Graduate Research Assistant*

- Worked under **Dr. James Rehg** on facial analysis, first person vision and mobile computer vision. Co-authored **four papers, one tech-report** and released **three open-source** computer vision applications in 2017 while taking a full-time course load.

**Massachusetts Institute of Technology**, Cambridge, MA May 2016 – August 2016  
*Machine Learning Research Intern (Computer Science and Artificial Intelligence laboratory)*

- Built a TensorFlow application on Android for visual detection of diseases in cassava plant leaves using deep learning.
- Deployed the application in Kampala, Uganda alongside collaborators from Makerere University.

## LEADERSHIP & AFFILIATIONS

**TEDxEcolePolytechnique**, Paris, France May 2014 – February 2016  
*President and founder*

- Founded and organized the first TEDx conference at Ecole Polytechnique.
- Recruited and managed the TEDx 2014-2015 team as well as the TEDx 2015-2016 team.

**Ecole Polytechnique Entrepreneurship Student Society**, Paris, France April 2014 – March 2016  
*Speaker & Startup Relations Manager*

- Organized the first Startup Showcase and job fair of Polytechnique and obtained the participation of over ten startups.
- Obtained the participation of coaches and a panel of renowned judges for Europe's largest Startup Weekend event.

## SKILLS

- Python, C++, Java, Matlab – PyTorch, TensorFlow, Caffe, scikit-learn – bash, Linux – SQL – Some Android, HTML, PHP.
- Fluent in English, French and Spanish.

## PUBLICATIONS

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Fine-Grained Head Pose Estimation Without Keypoints [1]

**Nataniel Ruiz**, Eunji Chong, James M. Rehg

Accepted for publication at the **8th IEEE Workshop on Analysis and Modeling of Faces and Gestures at CVPR 2018**.

Learning to Localize and Align Fine-Grained Actions to Sparse Instructions [2]

Meera Hahn, **Nataniel Ruiz**, Jean-Baptiste Alayrac, Ivan Laptev, James M. Rehg

Submitted to **ECCV 2018**, currently under review.

Connecting Gaze, Scene and Attention [3]

Eunji Chong, **Nataniel Ruiz**, Richard Wang, Yun Zhang, James M. Rehg

Submitted to **ECCV 2018**, currently under review.

Detecting Gaze Towards Eyes in Natural Social Interactions and Its Use in Child Assessment [4]

Eunji Chong, Katha Chanda, Zhefan Ye, Audrey Southerland, **Nataniel Ruiz**, Rebecca M. Jones, Agata Rozga, James M. Rehg

Chong, Eunji, et al. "Detecting Gaze Towards Eyes in Natural Social Interactions and Its Use in Child Assessment." *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 1.3 (2017): 43.

Dockerface: an Easy to Install and Use Faster R-CNN Face Detector in a Docker Container [5]

**Nataniel Ruiz**, James M. Rehg

**Ruiz, Nataniel**, and James M. Rehg. "Dockerface: an easy to install and use Faster R-CNN face detector in a Docker container." *arXiv preprint arXiv:1708.04370* (2017).

All papers, pre-prints and code can be found at [natanielruiz.github.io](https://natanielruiz.github.io)

## LINKS

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TEDxEcolePolytechnique: <https://www.tedxecolepolytechnique.com/>

Ecole Polytechnique Entrepreneurship Society: <https://www.cabinetstartup.fr/>

[6] Extended GTEA Gaze+: <http://cbi.gatech.edu/fpv/>