

# KONSTANTIN DMITRIEV

**Phone:** (631) 312-8718

**Website:** [kdmtriev.com](http://kdmtriev.com)

**Address:** 109 Willis Avenue, Port Jefferson, NY, 11777

✉ [kdmtriev@cs.stonybrook.edu](mailto:kdmtriev@cs.stonybrook.edu)

🌐 <http://github.com/dmitrievk>

## RESEARCH INTERESTS

---

Computer Vision, Image Processing, Machine Learning, Computer Graphics and Visualization

## PROGRAMMING & TECHNICAL SKILLS

---

**Programming languages**

**APIs**

Python, C++, MATLAB, Objective-C, SQL, L<sup>A</sup>T<sub>E</sub>X  
Scikit, Numpy, Scipy, ITK, TensorFlow, Keras, OpenCV, VTK,  
OpenGL, Foundation Framework, LibXML

## EDUCATION

---

**Ph.D. Candidate** (GPA: 3.8)

Computer Science,  
Stony Brook University, Stony Brook, NY

2014 - Present

**Bachelors of Science** (GPA: 4.9/5.0)

Computer Science and Applied Mathematics,  
Saint Petersburg State Electrotechnical University, Saint Petersburg, Russia

2010 - 2014  
(Graduated with Honors)

## RESEARCH PROJECTS

---

**Research Assistant**

*Center for Visual Computing, Stony Brook University, NY*

October 2014 - Present

**Automatic Pancreatic Cyst Classification in CT scans using CNNs and Random Forest**

*Python; Toolkits and libraries: Scikit-image, Scikit-learn, TensorFlow, Keras*

- Collaborated with radiologists to determine most descriptive demographic and radiological characteristics for different pancreatic cysts.
- Designed and developed a novel system for classification of the segmented pancreatic cysts using a CNN and random forest ensemble.

**Visual Analytics of Image-derived Features for Spleen**

*C++, Python; Toolkits and libraries: ITK, Scikit-image, Scikit-learn*

- Collaborated with radiologists and identified the most reliable radiological features for quantitative comparison in treatment evaluation.
- Developed the algorithms for various feature generation: measurements, shape and texture description.

**Semi-automatic Segmentation of Pancreas and Cysts from CT images**

*C++, Python; Toolkits and libraries: ITK, VTK, Scikit-image, Qt*

- Developed a segmentation tool for the segmentation, utilizing random walker and other image processing algorithms.
- Developed UI to obtain user inputs.
- Designed a novel method for pancreatic cysts segmentation.
- Achieved greater performance compared to the state-of-the-art approaches in pancreas segmentation.

*Saint Petersburg State Electrotechnical University, Russia*

**3D Reconstruction of Indoor Environments From Video**

*C++; Toolkits and libraries: OpenGL, OpenCV*

November 2013 - May 2014

- Developed a system for a real-time 3D reconstruction from video utilizing optical flow algorithms.
- Designed UI for the visualization and interaction with the reconstructed scene.

## WORK EXPERIENCE

---

**iOS Software Engineer Intern**

*Digital Design, Saint Petersburg, Russia*

*Objective-C; Toolkits and libraries: Foundation Framework, CoreData, LibXML*

January 2013 - March 2013

*iOS Application for Russian movie theater chain*


- Worked in a team of four to design applications structure, database and UI.
- Developed a segment for managing and storing users favorite movies.

- Designed and presented select lectures for groups of 40 students, graded student submissions.


## COURSE PROJECTS

---

CSE 527 Computer Vision: **Automatic Spleen Segmentation in Abdominal CT Scans**. Implemented a method for automatic spleen segmentation based on a hierarchical two-tiered classification of image patches. (C++, MATLAB, VTK, VLFeat)

CSE 534 Computer Networks: **Analysis of Russian Collateral Censorship**. Implemented data gathering and processing procedures after connecting to multiple VPN servers. (Python) 

CSE 528 Computer Graphics: **Developable Cloth Simulation**. Implemented a method for real-time cloth simulation. (C++, OpenGL)

CSE 537 Artificial Intelligence: **Naïve Bayes Spam Filtering**. Implemented a spam filter with Naïve Bayes. (Python) 

## PUBLICATIONS

---

1. **Dmitriev, K.**, Kaufman, A., Javed, A., Hruban, R., Fishman, E., Lennon, A.M., Saltz, J., (2017). "Classification of Pancreatic Cysts in Computed Tomography Images Using a Random Forest and Convolutional Neural Network Ensemble. To be presented at the *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, Quebec City, Quebec, Canada.
2. Gutenko, I., **Dmitriev, K.**, Kaufman, A., Barish, M., (2017). AnaFe: Visual Analytics of Image-Derived Temporal Features - Focusing on Spleen. *IEEE Transactions on Visualization and Computer Graphics*, 23(1), 171-180.
3. **Dmitriev, K.**, Gutenko, I., Nadeem, S, Kaufman A., (2016). "Pancreas and cyst segmentation." *SPIE Medical Imaging: Image Processing*, (p. 97842C).

## AWARDS

---

*The Renaissance Technologies Fellowship*, Stony Brook University

2014 - 2017

## LANGUAGES

---

English

Russian