

Nare Karapetyan

Curriculum Vitae

Address: 315 Main St. Columbia, SC, USA

Phone (mobile): +1-803-404-0659

Email: nare@email.sc.edu

EDUCATION

University of South Carolina,
2016-2021

PhD in Computer Science

American University of Armenia,
2013-2015

MSc in Computer and Information Science
Thesis: "Area Coverage for Multi-robot Systems"

Yerevan State University,
2008-2012

BSc in Applied Mathematics and Informatics

Research Interests: Multi-robot systems, path planning, machine learning, reinforcement learning, intelligent tutoring

EXPERIENCE

03/2016 -current	American University of Armenia, Yerevan, Armenia
06/2015 - 05/2016	Research Associate: Virtual Khachkar Museum
02/2015 - 09/2015	Teaching Associate of Discrete Mathematics, Theory of Algorithms, Network Theory courses
02/2015 - 05/2015	Research Assistant: Research in nonlinear optimizations
	Teaching Assistant for "CIS 311: Theory of Algorithms" course
05/2013 - 07/2014	Improviss LLC, Yerevan, Armenia
	Software Engineer: Design, implement and test pattern recognition, computer vision algorithms for assigned tasks.
06/2012 - 11/2012	SP LAB, Yerevan, Armenia; ISP RAS, Moscow, Russia
	Software Developer: Research, design and implement machine independent optimizations for JavaScriptCore JIT compiler.
09/2011 - 05/2012	Scholar: Running weekly seminars. Python library tuning.
01/2010 - 06/2011	Instigate LLC, Yerevan, Armenia
	Part-time student at Software Engineering Training Center: Daily classes on various topics in software engineering, implementation of assigned projects

SKILLS

Programming:	C/C++, Python, bash scripting, octave
Libraries:	STL, QT, OpenCV, Boost (GBL), ROS, scikit-learn
Tools, Technologies:	GNU C++ compiler/debugger GCC and GDB, vim, SVN, git, LaTeX, QT creator, StarUML, Microsoft VS (10, 12), Arduino
Languages:	Armenian (native), Russian (fluent), English (professional)

PROJECTS

- **Gamification in Education (ongoing):** Research in the field of intelligent tutoring and gamification in education.
- **Solar energy production prediction:** Predicting an amount of energy produced by a solar electricity generating facility. Implemented in R using Gradient Boosting Machine (gbm) method. The mean error rate acquired is near to 0.18.
- **Multi-robot Area Coverage:** Research and development the approximation algorithms for multi-agent area coverage. Implemented method increases the utilization by 11% on average and decreases the

maximum coverage cost by 8%

- **Stress Model Calibration:** Research the latest direct-search optimizations for applying it on stress model calibration function.
- **Car License Plate detection for verification system:** Research the existing detection algorithms, finding appropriate solution within the scope of the problem; determine the key features for number plate detection. Training data creation. The accuracy of prediction acquired was 85%.
- **Computer Vision Algorithm Prototyping tool:** Design and implement system by which anybody with or without prior knowledge in programming can prototype their own computer vision algorithms.
- **Armenian Handwriting recognition:** Design and implement system. Find key features of handwritten characters.
- **Verification card code extraction:** Implement a system which detects a code in the given card, and recognizes it. Within this project was implemented digit recognition system using HOG features.
- **JavaScriptCore JIT compiler optimization:** Research for possible optimizations in JavaScriptCore JIT compiler. As a result of research GVN/PRE optimization was implemented.
- **Mine sweeper robot:** Design and build the mine detecting mobile robot
- **Howler messenger:** Design and implement client-server application, using POSIX threads and sockets. Write documentation - functional specifications.
- **Interruptation Vector Table Changes:** Change INT 21H functions original purposes by changing IVT on real time DOS system.

AWARDS and SCHOLARSHIPS

07/2015	Calouste Gulbenkian Foundation , Short Term Conference Travel Grant
09/2013 – 06/2015	American University Of Armenia (AUA) , AUA/MoES tuition fee full scholarship.
2014	RA Annual Presidential IT Award , Best Master Student in IT sector
09/2011 – 05/2012	SP LAB , Yerevan, Armenia; ISP RAS , Moscow, Russia Scholarship awarded by ISP RAS to undertake research work in compiler technologies.
08/2011 – 12/2011	ArmRobotics Competition , Yerevan, Armenia Nominal Award for participation in competition aimed at designing and constructing mine detecting robot.
08/2009 – 12/2012	Yerevan State University . MoES tuition fee scholarship.

ADDITIONAL COURSES and PROGRAMS

Jan 01 - 14, 2017	Bellairs Annual Field Trials and Workshop , Holetown, Barbados
Feb 22 - 25, 2015	IBM Watson training , Yerevan, Armenia
Sept 22 - 25, 2015	CRIWG 2015 conference , Yerevan, Armenia
Aug 23 - Sept 4, 2015	Machine Learning Summer School , Kyoto, Japan
	Coursera , coursera.org
February 16, 2016	<i>Academic English: Writing</i> Specialization course by University of California, Irvine
February 4, 2016	<i>Python Data Structures</i> by University of Michigan
January 21, 2016	<i>Programming for Everybody (Getting Started with Python)</i> by University of Michigan
04/2013 – 06/2013	<i>Machine Learning</i> by Andrew Ng; Stanford University
04/2013 – 06/2013	<i>Introduction to Logic</i> by Michael Genesereth; Stanford University
01/2013 – 03/2013	<i>Algorithms: Design and Analysis</i> , Part 1 by Tim Roughgarden; Stanford University <i>Control of Mobile Robots</i> by Dr. Magnus Egerstedt; Georgia Institute of Technology
	Lomonosov Moscow State University , Moscow, Russia
02/2012 – 04/2012	Visiting Student, taken courses in Assembly language, Compilers, C programming and Algorithm Theory.

NON-ACADEMIC

Scuba diving - Swimming - Digital Photography - Environment