

# Numair Khan

numair\_khan@brown.edu • <http://cs.brown.edu/~nkhan6> • tel: 401-654-7901  
Department of Computer Science, Box 1910, Brown University, Providence, RI

- RESEARCH** My current research focuses on the low-level reconstruction of edges, depth, and superpixels in multi-camera systems for view-synthesis, light field imaging, and scene reconstruction.
- EDUCATION**
- Brown University**, Providence, RI  
PhD in Computer Science, with Prof. James Tompkin 2016 – 2021  
MS in Computer Science 2016 – 2018
- Courant Institute, New York University**, New York, NY  
MS in Computer Science, with Prof. Ken Perlin 2012 – 2014  
*Master’s Thesis*: Multi-level Procedural Terrain Rendering
- Lahore University of Management Sciences**, Lahore, Pakistan  
BSc (Honors) in Computer Science 2005 – 2009
- ACADEMIC AWARDS**
- Brown Graduate School Fellowship 2016 – 2017  
Fulbright Scholarship 2012 – 2014  
NYU Master’s Thesis Research Fellowship 2013
- PUBLICATIONS**
- N. Khan**, M. H. Kim, and J. Tompkin, “View-Consistent 4D Light Field Depth Estimation,” *Under Review*, Apr 2020
- N. Khan**, Q. Zhang, L. Kasser, H. Stone, M. H. Kim, and J. Tompkin, “View-Consistent 4D Light Field Superpixel Segmentation,” *International Conference on Computer Vision (ICCV)*, Nov 2019. (Oral Presentation)
- N. Khan**, and A. Rahman, “Rethinking the Mini-Map: A Navigational Aid to Support Spatial Learning in Urban Game Environments,” *International Journal of Human-Computer Interaction* 34(12), pp. 1135–1147, Dec 2017.
- M. Nasim, A. Rextin, S. Hayat, **N. Khan**, and M. Malik, “Data Analysis and Call Prediction on Dyadic Data from an Understudied Population,” *Pervasive and Mobile Computing* 41, pp. 166–178, Oct 2017.
- N. Khan**, and M. Zahran, “Space-Efficient Pointwise Computation of the Distance Transform on GPUs,” *2017 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, pp. 557–566, May 2017.
- M. Nasim, A. Rextin, **N. Khan**, and M. Malik, “Understanding Call Logs of Smartphone Users for Making Future Calls,” *Proc. 18th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI’16)*, ACM, New York, pp. 483–490, Sep 2016.
- INVITED TALKS** “View-Consistent Light Field Superpixels,” at the Korean Advanced Institute of Science and Technology (KAIST), Oct 2019.
- NON-REFEREED ARTICLES AND PRESENTATIONS**
- N. Khan**, “View-Consistent Light Field Superpixel Segmentation,” poster presented at the 3rd New England Symposium on Graphics, Apr 2019.
- N. Khan**, “Light field segmentation via EPI bipartite-matching,” poster presented at the New England Computer Vision Workshop, Nov 2018.

**N. Khan**, A. Penu, T. Dickerson, L. Liukas, C. Jung-Harada, S. Bhattacharya, “I, Entrepreneur,” *ACM XRDS* 23(4), pp. 50–53, 2017.

**N. Khan**, “The essentials of a computer scientist’s toolkit,” *ACM XRDS* 21(2), pp. 9–9, 2014.

**N. Khan**, “An augmented reality learning tool,” The 11th Annual Fulbright and Humphrey Alumni Conference, Lahore, Pakistan. Dec 2014. Seminar talk.

**TEACHING  
EXPERIENCE**

**Head Teaching Assistant**, Brown University

Computational Photography

Fall 2018

Advanced Computer Graphics

Spring 2018

**Visiting Faculty**, National University of Science and Technology, Pakistan

Advanced Programming

Spring 2016

Operating Systems

Fall 2015

**Grader**, New York University

Fundamental Algorithms

Fall 2013

**Tutor**, SOS Village, Rawalpindi, Pakistan

High school mathematics and physics

Nov 2014 – Apr 2015

**INDUSTRY  
EXPERIENCE**

**Founder/Mobile Game Developer**, The Kinematic Laboratory

Mar 2010–Apr 2012

– Released six game titles on the iPhone App Store.

– Developed *Flood Rescue*, a game which became the highest ranked app in Pakistan, the second-highest ranked app in India, and a top-ten app in four other countries.

**Mobile Game Developer**, Tintash Inc., Pakistan

Jul 2009 – Mar 2010

– Developed level designer for the iPhone game *Super Slyder*.

– Led development on two additional iPhone games.

**Software Developer**, Techlogix Pvt. Ltd, Pakistan

Sep 2009–Mar 2010

– Gained experience developing enterprise software as part of a global team.

– Led the integration phase in the deployment of Oracle’s FLEXCUBE service for a national bank using IBM’s WebSphere software

**OPEN-SOURCE  
SOFTWARE**

**Light Field Superpixel Segmentation**

<https://github.com/brownvc/lightfieldsuperpixels>

**TEACHING  
DEVELOPMENT**

**Certificate I: Reflective Teaching**

Sheridan Center for Teaching, Brown University

May 2018

**Certificate II: Course Design**

Sheridan Center for Teaching, Brown University

May 2019

**MENTORING**

Ghulam Murtaza, PhD Student at Brown University

Charles Lovering, PhD Student at Brown University

Jarrold Hill, Senior at North Smithfield High School, Rhode Island, USA

Lauren Cenedella, Senior at North Smithfield High School, Rhode Island, USA

<b>SKILLS</b>	<b>Programming</b> C, C++, Objective-C, Java, C#, Python, Javascript	<b>Scientific Computing</b> MATLAB, CUDA, R, OpenCL	<b>APIs/SDKs</b> OpenCV, TensorFlow, PyTorch OpenGL, GLSL, Kinect SDK	<b>Software</b> Unity3D, Cocos2d, Unreal Engine, Maya, Photoshop
<b>RELEVANT COURSEWORK</b>	Advanced Computer Vision Machine Learning Linear Algebra	Advanced Computer Graphics Deep Learning Advanced Probability	Motion Capture for Movies & Games Convex Optimization Numerical Methods	
<b>SERVICE</b>	Feature editor for the ACM Crossroads (XRDS) magazine Lead Editor, ACM XRDS:CrossRoads, Volume 25, No. 1 Lead Editor, ACM XRDS:CrossRoads, Volume 23, No. 4 Lead Editor, ACM XRDS:CrossRoads, Volume 22, No. 3 Judge at the North Smithfield High School Senior Project Presentations, 2018 Member of the interview panel for the USEFP Global Undergraduate exchange program, 2015			
<b>LEADERSHIP ACTIVITIES</b>	Completed Block-I of Brown University’s conflict resolution workshop Represented Pakistan at the 65th Student Conference on United States Affairs at the US Military Academy at West Point, New York Volunteered at the UN headquarters in New York on the occasion of Malala Day - an event to support the Secretary General’s global initiative on education Volunteered to restore the mural ”Celebrating the Heroes of the City” in the Henry M. Jackson Playground in Lower Manhattan Volunteered at the SOS Village in Rawalpindi, Pakistan, teaching STEM subjects to higher secondary school students			