SF Bay Area, CA

MUHAMMAD A. RIAZ

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EMPLOYMENT

Machine Learning Engineer   **Apple Inc.**   **Oct 2016 – Present**
- Worked on development and evaluation of Vision and Machine Learning solutions.
- Developed directional light estimation in ARKit, a framework shipped with iOS 11.

Graduate Student Researcher   **University of California, San Diego**   **Spring 2015 – Summer 2016**
Visual Computing Center (Prof Ravi Ramamoorthi)
- Implemented fully automatic, state of the art single view 3D reconstruction (SVR) system for human faces.
- Predicted cast shadows on the face; significantly reduced reconstruction error due to shadowing.
- Designed and implemented a hybrid of parametric model and shape from shading; captured local details while preserving global shape.

Research Assistant   **LUMS, Pakistan**   **Jun 2012 – Jan 2014**
Computer Vision Group
- Performed extensive per stage quantitative stability testing of in-house single view reconstruction algorithm.
- Implemented chirality constraints on the search space; reduced false positives by 32%.

EDUCATION

M.S. Computer Science   **University of California, San Diego**   **July 2016**
- GPA: 3.78

B.S. Electrical Engineering   **LUMS, Pakistan**   **May 2012**
- In-major GPA: 3.73, cGPA: 3.67

Relevant Courses:
- Computer Vision I & II
- Real-time High Quality Rendering
- Advanced Computer Graphics
- Neural Networks, Pattern Recognition
- Embedded Image Processing
- Probabilistic Reasoning and Learning
- Advanced Algorithms
- Advanced Computer Architecture
- Graduate Operating Systems

PROJECTS

- **Expression Retargeting** (2011). Projects facial expression from sparse MOCAP data onto a dense 3D character using spatio-temporal basis.
- **Convolutional Neural Network** (2015). A reconfigurable CNN framework with accuracy>91% on MNIST.
- **Pre-computed Radiance Transfer** (2015). Real-time rendering system; pre-computes geometric information and renders object under dynamic environment maps at more than 100 fps.

ADDITIONAL EXPERIENCE AND AWARDS

- **Teaching Assistant (2009 – 2014):** Assisted in Computer Vision, Computer Networks, Introduction to Programming (C++), Computational Problem Solving (MATLAB).
- **Media Coordinator (2011):** Led the media cell at *Young Leaders' Summit* and secured print media coverage.
- **Best project (2009):** 2nd prize for best course project in freshman year for Speech Recognition system.
- **Dean's Honor List (2008-12):** Remained on Dean's List throughout the undergraduate period.
- **3rd Place nationwide (2008):** Gold medal in International Math's Kangaroo Contest (Pakistan).

TECHNICAL SKILLS

- C++, C, MATLAB, OpenGL, Python, Bash, Verilog, MySQL, JavaScript, HTML, CSS
- 3D Reconstruction, Computer Vision, Neural Nets, Artificial Intelligence, GPU Programming, Image Processing