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Roya Shams

Experience

Dot Health – Software Developer Intern — Sept. 2018 – Oct 2018

- Designed and Implemented **ReactJS** features across **back-end**, **front-end user** and **internal interfaces** at an early-stage startup for patients to digitally access medical records from any Canadian institution
- Worked closely across Operations, Development, and Product departments to **streamline the workflow** of the Operations team
- Communicated and took initiative with design choices for **internal tooling**
- Further developed **RESTful API** by creating **endpoints** and **routing methods**

Hatch Coding – Alpha Coach — Sept. 2017 – Current

- **Classroom instructor** for afterschool program towards students aged 7-17, assists students with designing and implementing **python** or **processing.js projects**

Projects

Personal Site: www.royashams.com in **HTML, CSS, JQuery** — Jul. 2017

- Designed all graphic components using **Adobe Photoshop.**
- Used an **iterative design process** and **cognitive walkthrough** with multiple users
- **Prototyping, testing, observing user feedback** used for key refinements

Course Projects in Computer Graphics

Shaders in **OpenGL** — Mar. 2018

- Implemented ambient, diffuse, and specular components of Phong and Gouraud **photorealistic shading models**, as vertex or fragment shaders
- Modified these models to obtain **stylistic results**

Ray tracing in **C++** — Apr. 2018

- **Collaboration** with a partner on a ray tracer that computes intersections and renders spheres and planes, following **calculus** and **vector geometry** equations
- Computes shadows and **recursively** bounces rays off of objects to produce reflections
- Additionally implemented **anti-aliasing** using normal sampling, simulated **depth of field** following the thin-lens model.

Triangulation Matting in **NumPy** and **OpenCV** — Feb. 2018

- ("Blue Screen Matting", Smith & Blinn, 1996)
- Computes alpha and color values of a foreground object from 2 sets of images containing a foreground object and a background, and images with the removed foreground object.
- **Composites final images** given foreground and a new background.

Image Inpainting in **NumPy** and **OpenCV** — Mar. 2018

- ("Exemplar-Based Image Inpainting", Criminisi et al. 2004)
- Removes large gaps from digital images using background patches and **similar edge detection.** Fills the remaining area using this information.
- Computed **gradients, curve normals, and confidence values** given an image patch.

Education

University of Toronto, St. George
Toronto, ON, Canada
(H.B.Sc) **Computer Science** Specialist

Technical Skills

- **Languages:** Python, Java, C, C++, SQL, HTML, CSS, JavaScript, Verilog
- **Other Technologies:** ReactJS, OpenGL, OpenCV, JQuery, processing.js, Ajax, Django, NumPy
- **Git** and Version Control, VSCode
- **OSX** and **Linux**
- Graphic Design with **Adobe Creative Suite**
- **Autodesk Maya**

Soft Skills

- Teamwork and co-operation
- Communication
- Leadership and delegation
- Conflict resolution
- Self motivated and takes initiative
- Creative and adaptable

Extracurricular

- **Vice President** of University of Toronto Computer Graphics club (UTCG) (Current)
- **Toronto ACM SIGGRAPH** Executive Committee Member (Current)
- **SIGGRAPH Student Volunteer**
  Vancouver (Aug. 2018)
  Los Angeles, (Jul. 2017)
- Hart House Singers – Choir Member (2016-2017)
- Independent **photographer, musician, designer and sculptor**

Courses

- Introduction to Visual Computing
- Computer Graphics
- Operating Systems
- Software Design
- Web Development
- Design of Interactive Computational Media
- Introduction to Databases
- Algorithm Design, Analysis, and Complexity