SIMRON THAPA

PhD Candidate, Imaging and Vision Lab
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EDUCATION

Louisiana State University, Baton Rouge *Aug 2017 - Aug 2021(Expected), GPA: 3.81/4*
PhD in Computer Science
Department of Computer Science and Engineering

Louisiana State University, Baton Rouge *Aug 2015 - Aug 2017, GPA: 3.86/4*
MS in Computer Science
Department of Computer Science and Engineering

Tribhuvan Univeristy, Nepal *Aug 2009 - Dec 2013, GPA: 4/4*
BE, Computer Engineering.
Department of Electronics and Computer Engineering

TECHNICAL STRENGTHS

Languages	Proficient: Python, Java, C++, SQL, Shell Scripting Prior Experience: C, C#
Python Libraries	TensorFlow, Keras, PyTorch, Pandas, NumPy, SciPy, OpenCV, Matplotlib, CUDA
Math and Stats.	MATLAB, R
Computer Graphics	OpenGL, WebGL, THREE.js, Processing (P5.js), Wings3D, Unity,Blender
Web	Groovy & Grails, JSP, JSF, Servlets, XML, DOM, JavaScript, JQuery
SDLC/Documentation	Agile/Scrum, UML, LaTeX
Platforms/ Frameworks	Windows, UNIX/Linux/OSX, Spring, Grails
Others	Docker, Design Patterns, MVC, Git, SVN, Maven, Jira

PUBLICATIONS AND PRESENTATIONS

N. Li, **S. Thapa**, C. Whyte, A. Reed, S. Jaysuriya and J. Ye, "Non-Rigid Image Distortion Removal with an Unsupervised Deep Neural Network," 2021 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR). [Under Review]

S. Thapa, N. Li and J. Ye, "Revisit Seeing Through Water with DG-Net: Distortion Guided Network for Image Restoration," 2021 AAAI Conference on Artificial Intelligence (AAAI). [Under Review]

S. Thapa, N. Li and J. Ye, "Dynamic Fluid Surface Reconstruction Using Deep Neural Network," 2020 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), Seattle, WA, USA, 2020, pp. 21-30, doi: 10.1109/CVPR42600.2020.00010. [ORAL ($< 3\%$)]

S. Thapa N. Li and J. Yei, "Dynamic Fluid Surface Reconstruction Using Deep Neural Network," 2020 IEEE International Conference on Computational Photography (ICCP). [Poster Presentation]

S. Thapa and B. B. Karki, "Interactive Web-Based Visualization of Atomic Position-Time Series Data," American Geophysical Union (AGU), Fall Meeting. 2017 [Poster Presentation]

EXPERIENCE

Intern, Advanced Graphics Platform Jun 2020 - Aug 2020
Futurewei Technologies, Santa Clara, CA

- Developed the low power high performance unified 2D/3D graphics rendering and image processing framework architecture and end-to-end system solutions for mobile open innovation in future UI / 2D+3D graphics rendering / image applications.
- Developed an interactive, real time depth estimation network for cell-phone images using auto-encoder deep neural network with DenseNet layers. The depth information is used to change the views of the 2D images for 3D feel using context aware 3D inpainting.
- For sequential image inputs or video inputs, we added recurrent layers with long-short-term memory for making our predictions both spatially and temporarily consistent.

Student Worker - Summer Assistantship May 2019 - Aug 2019
Experemental Statistics on Machine Learning Mosquito Analysis Grant for LSU and St. Tammany Mosquito Abatement District Project

- Conducted the deep learning project for object detection and classification of different phases of mosquito life-cycle. Implemented customized blob detection algorithms for selective selection of different mosquito stages while ignoring the misleading surrounding particles. Image processing for extracting the non-redundant and relevant frames from videos of different stages of mosquitoes for training data creation.

Course Instructor Spring 2018, 2019, and 2020
Division of Computer Science and Engineering, Louisiana State University

- Designed the syllabus and providing lectures for CSC 2463 Digital Media Programming. Class size 50-80.

Research Assistant Aug 2015 - Present
Division of Computer Science and Engineering, Louisiana State University

- 3D Fluid Surface Reconstruction using novel deep neural network.
- Novel Adversarial Distortion Guided Network for Image Restoration.
- Research and development of AR/VR applications for real world problems.
- Development of scientific tool for analysis and visualization of 3D positional datasets generated by Molecular Dynamic Simulations.

Teaching Assistant Aug 2015 - Present
Division of Computer Science and Engineering, Louisiana State University

- Assistance/Grading of lectures and labs of Object-Oriented Programming, MATLAB, Interactive Computer Graphics, Game Development, Data Structures, and, Artificial Intelligence.

Software Engineer Jan 2015 - Jul 2015
Deerwalk Inc., Lexington, MA — Kathmandu, Nepal

- Performed data analytics and provided integrated informatics and actionable healthcare data from raw patient data. This supported period-to-period comparisons and trend analysis.
- Developed reporting, and search modules based on US healthcare data and implemented its exports using various APIs (Dynamic Jasper and MS Aspose Report).
- Designed and developed modules in Java/Groovy that read the data from Web-Services (RESTful Services).
- Front-End full-stack development of the application in Grails framework and User Interface implementation in JavaScript/jQuery. Data Visualization done using Highcharts and D3.js.

Associate Software Engineer Nov 2013 - Jan 2015

Deerwalk Inc., Lexington, MA — Kathmandu, Nepal

- Analyzed existing code-base in java/groovy. Bug fixes. Ensured that the quality meets the requirements and the implementation was complete within the deadline.

SELECTED APPLIED PROJECTS

Gaze data tracking and analysis in multiple AR/VR scenes using Unity, HTC Vive with PupilLab and HTC VivePro, Ongoing
Combined project with LSU Department of Construction Management to analyze the eye-gaze data in different internal building structures.

Plan Analytics, US Healthcare Data Analytics, Deerwalk Inc., Nov 2013 - Jul 2015
A team project. My part was to create a drillable dashboard that helps client to get overall insight of application from one place, re-factor existing web services making it thread-safe and externalize configurations, and, make backend service for Export isolated from front-end.

Report Manager, US Healthcare Data Analytics, Deerwalk Inc., Nov 2013 - Jul 2015
Reporting application developed for cross application report exchange. RestAPI widely explored and the reports generated in Microsoft Aspose and Dynamic Jasper.

Andriod Application/Web Application development for College Managemant System, Kathmandu Engineering College, May 2013 - Aug 2013
A college application for Student-Teacher file sharing with Dropbox API for larger files. Top features includes AI Chat-bot as a help for some CS course. Naive Bayes and Support Vector Machines for spam message filtering (Text analysis algorithms).

CONFERENCE / JOURNAL REVIEWER

25th International Conference on Pattern Recognition (ICPR2020)	Reviewer
35th AAAI Conference on Artificial Intelligence (AAAI2021)	Reviewer

HONORS, AWARDS AND INVOLVEMENTS

Scholar	3M RISE Symposium, 2020
Scholar	Anita B. Org Grace Hopper Celebration, 2020
Summer Grant	Machine Learning Mosquito Analysis grant, 2019
Winner	Intel X LSU AI Ambassador Lab 2018
Graduate Research Assistantship	Louisiana State University
Graduate Teaching Assistantship	Louisiana State University
Core Team	TedXLSU 2017
Travel Grant	ACM Super Computing Conference, 2016 (SC'16)
Programmer of the Year	Deerwalk Inc, 2014 (>300 employees)
Outstanding Student Award	KEC, Tribhuvan University, 2010 - 2013
Windows App Development Certification	Microsoft Innovations
Microsoft Student Partner (MSP)	Microsoft Innovations
Member	Society of Women Engineers (SWE)
Member	American Geophysical Union (AGU)
Member	IEEE
Graduate School Senator	Student Government at LSU
Membership Officer	Women in Computer Science (WICS@LSU)
Vice President	Nepalese Student Association (NSA@LSU)
Web-Coordinator	Nepalese Student Association (NSA@LSU)

EXTRA-CURRICULAR

Volunteered in supporting LSU Student Emergency Support Fund for benefiting students in need of support in emergency situations like COVID-19. 2020.

Organized Girl Scouts of Southeast Louisiana Believe in Girl (BIG) Event with over 2,000 Girl Scouts, hosted by College of Engineering, Louisiana State University. Demonstrated age-appropriate applications on VR and AR headsets. 2019.

Conducted Hackathon event for Game Development, Women in Computer Science (WICS@LSU), 2017.

Conducted Mental Health Awareness Program, LSU Student Governement and LSU Health Science Center, 2017.

Represented Nepal in Rotary's 3rd Annual Global Community Day, Baton Rouge, LA.

Fundraising Coordinator for Flood Victims during 2016 Flood, organized by Hindu Vaidic Society at Baton Rouge, LA.

Member and Secretary of the Leo Club, Kathmandu from 2013 to 2015.

Winner of Inter Departmental Basketball Competition, 2009.

REFERENCE

Dr. Bijaya B. Karki	Professor/Department Chair, Department of Computer Science and Engineering, Louisiana State University
Dr. Jinwei Ye	Assistant Professor, Department of Computer Science and Engineering, Louisiana State University
Dr. Jianhua Chen	Professor, Department of Computer Science and Engineering, Louisiana State University
Dr. Nianyi Li	Post Doc, Department of Computer Science and Engineering, Louisiana State University
Dr. Suraj Bajhgain	Post Doc, Florida State University
Er. Biswas Lohani	Sr. Engineering Manager, Deerwalk Inc., Nepal