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A: 58 Oak Hill Ln South Pasadena, CA 91030

EDUCATION

M.S. | George Washington University

1995

Mechanical Engineering with Aeronautical Emphasis

B.S. | St. Louis University

1991

Aerospace Engineering

TEACHING EXPERIENCE

Senior Instructor | USC, Viterbi School of Engineering, ITP/TAC Assistant Director of Academic Program

2017 - Present

2024-Present

- Viterbi IT liaison
- DEN coordination classroom spaces and scheduling
- ITP Curriculum Oversight (minors and joint majors)
- Engineering Curriculum Committee back-up to primary ECC rep
- Rebranding, communication, and marketing efforts
- Other duties as assigned by Director or Associate Director

Adjunct Instructor | USC, Viterbi School of Engineering, CS

2015 - 2017

Instructor | Art Institute of California, Los Angeles

2009 - 2014

PROFESSIONAL EXPERIENCE

CEO | Whiting Game Studios Inc

2017 - Present

- Technical Consulting
- Performance Analysis and Optimization
- Cross-Platform Porting
- Videogame Contract Programming

CTO | Wholesale Algorithms, Inc.

2006 - 2017

- Technical Direction
- Software Architecture
- Technical Consulting
- Performance Analysis and Optimization
- Cross-Platform Porting
- Videogame Contract Programming

Technical Director | Luxoflux

2006

- Managing Engineering Team
- Overseeing Engine Development
- Designing and Overseeing Tools Development

Overseeing Game Develepment **Lead Programmer | Luxoflux** 2001 - 2005 Managing Engineering Team Numerous Contributions to Engine and Tools Development Lead Gameplay Development **Programmer | Insomniac Games** 1998 - 2000 Numerous Contributions to Engine and Gameplay Development Playable Character Controls Camera Level Gameplay Programming Visual Effects **Programmer | Black Ops Entertainment** 1995 - 1998 Numerous Contributions to Engine and Gameplay Development Playable Character Controls Camera Level Gameplay Programming Visual Effects **COURSES TAUGHT** ITP 115 | Programming in Python 2021 ITP 165 | Introduction to C++ Programming 2024 ITP 380 | Video Game Programming 2017 - Present 2022 - Present ITP 382 | Mobile Game Programming ITP 481 | Game Programming Professional Development 2019 - Present ITP 483 | Communication for Software Engineers 2020 - Present ITP 485 | Programming Game Engines 2016 - Present 2024 CSCI 113 | Programming Fundamentals for Computational Science CSCI 491a/b | Final Game Project 2015 - 2019CSCI 529a/b | Advanced Game Projects 2019 - Present **COURSES CREATED** ITP 481 | Game Programming Professional Development Spring 2019 This course will focus on the practical math, algorithms, and other topics relevant to new professionals in 3D video game programming. Particular focus will be centered on presentation and communication skills. ITP 483 | Communication for Software Engineers Fall 2020 Expanding beyond your current technical skills, user focused design, problem space vs solution space, data structures, algorithms, coding challenges, live engineering demonstrations and presentations. Fall 2024 CSCI 113 | Programming Fundamentals for Computational Science Introduction to Python and C++; intended for students without prior programming experience; examples from various domains in computational science.

CURRICULUM DEVELOPMENT

Fall 2022 - Present ITP 382 | Mobile Game Programming Rescued the course from potential cancellation when the previous instructor left Completely rebuilt the course from scratch Focus on critical foundational topics and student engagement • Every student deploys their games to mobile devices (many on day 1) Acquired and set up mobile devices for students who lack compatible phones ITP 481 | Game Programming Professional Development Spring 2019 - Present Developed a completely new course Designed to serve the needs of the CSGM students at their own request Practice with linear algebra and other videogame-related math concepts Practice with presentation and communication skills ITP 483 | Communication for Software Engineers Fall 2020 - Present Developed a completely new course Designed to serve the needs of the CS students at their own request Practice with difficult programming challenges Practice with presentation and communication skills Emphasis on design-thinking Emphasis on growth mindset Introduced auto-graded unit tests via codepost.io Fall 2016 - Present ITP 485 | Programming Game Engines • Continually updating the course to remain relevant • Students build their own engine in DirectX from scratch Added Normal Mapping o Added Post-Effects Added Profiling Added Job Manager Added Compute Shaders Frequent coordination with industry professionals Refinement of the course to maximize student success Successfully placed many students in high-profile positions at major videogame companies such as Insomniac Games, Riot Games, and Naughty Dog Converted the course to a flipped classroom o Pre-recorded videos replace traditional homework for half the lecture material • That lecture time is instead devoted to in-class work to practice the skills from the lectures CSCI 529a/b | Advanced Game Projects Fall 2019 - Present Integration of the CSGM Masters students with the rest of the USCGames program Integration of the CSGM MS students with the MFA program Instituted faculty mentors for each project team • Direct mentorship of MS students collaborating with MFA projects Engineering milestones **Technical Design Documents** DevVlog YouTube videos share the experiences across team lines Fall 2022 - Present **Video Game Production Minor** Created a new minor • Replace/rescue the old VGDM minor which was failing due to low enrolment Coordinated with USC Cinematic Arts and USC Marshall School of Business Developed new courses at ITP

Fall 2024

CSCI 113 | Programming Fundamentals for Computational Science

- - Created a new course based on skeletal syllabus

Lead faculty representing the minor

Integrated existing courses across several schools

- Created 24 Lab Assignments, 10 Homework problems, and 2 Exams
- Created 25 Lectures

• Integrated course into multiple majors and minors

Platforms: PS4, Switch, XB1, PC (Steam, GOG, and Microsoft)

• Porting the existing project to new platforms

PlayStation support

VIDEOGAME DEVELOPMENT

Developed by Cardboard Computer Published by Annapurna Interactive	2023 - 2024
Platforms: iOS (Netflix), Android (Netflix)	
Porting the existing project to iOS and Android	
Integration of Android Asset Packs	
Integration of Netflix SDK	
 Support for additional languages including Arabic and Thai (not natively supported in Unity) 	
Robot Race (http://easleydunnproductions.com/RobotRace.html)	Coming Sooi
Developed by <u>Easley-Dunn Games</u> Published by <u>Easley-Dunn Games</u>	•
Platforms: iOS, Android	
Multiplayer support	
In-App Purchases	
UI overhaul	
 Leading the student and post-graduate engineering team 	
Time Barbarian Extreme!! (https://wholesalealgorithms.com/time-barbarian-extreme.html)	Coming Soo
Developed by Wholesale Algorithms Published by Wholesale Algorithms	
Platforms: iOS, Android	
Mobile adaptation of previously released game	
In-App Purchases	
In-App Advertising	
• <u>DevVlog</u>	
Developed by <u>Easley-Dunn Games</u> Published by <u>Easley-Dunn Games</u> Platforms: iOS, Android • Leading the student and post-graduate engineering team	
IMVU (https://secure.imvu.com/welcome/ftux/)	202
Developed by IMVU Published by IMVU	
Platforms: iOS, Android	
 New systems for character customization to allow greater diversity 	
 New systems for character customization to allow greater diversity Collaboration with tech artists to convert shader code to mesh pre-processing 	
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 Collaboration with tech artists to convert shader code to mesh pre-processing 	202
 Collaboration with tech artists to convert shader code to mesh pre-processing Mentorship of junior programmers 	202
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 Collaboration with tech artists to convert shader code to mesh pre-processing Mentorship of junior programmers Maquette (https://maquettegame.com/) Developed by Graceful Decay Published by Annapurna Interactive Platforms: PS4, PS5, PC (Steam) Managing lightmaps in dynamic scenes Rendering optimization 	202
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Nintendo supportMicrosoft support	
Steam support	
GOG support	
GDK support	
Outer Wilds (https://www.mobiusdigitalgames.com/outer-wilds.html)	2019
Developed by Mobius Digital Published by Annapurna Interactive Platforms: PS4, XB1, PC (Steam & Epic)	
Performance optimization	
PlayStation support	
XB1 support	
Time Barbarian Extreme!!	2018
(https://store.steampowered.com/app/702900/Time_Barbarian_Extreme/)	
Developed by Wholesale Algorithms Published by Wholesale Algorithms	
Platforms: PC (Steam)	
Original game	
Wholesale Algorithms, Inc.	
Gorogoa (http://gorogoa.com/)	2017
Developed in Collaboration with Buried Signal Published by Annapurna Interactive	2017
Platforms: iOS, Android, PS4, Switch, XB1, PC (Steam & GOG) • Transcribed original Java code into C#	
Adapted project from software renderer into Unity	
PlayStation support	
Nintendo support	
XB1 support	
Mobile support	
Steam & GOG support	
Unannounced Title	2017
Developed by Riot Games	
Platforms: PC	
Automated Testing	
Platform Compatibility Testing	
Fat Princess Advenctures (https://store.playstation.com/en-us/product/UP9000-cusA01388_00-FATPRINCESSADVNT)	2015
Developed by Fun Bits Interactive Published by Sony Interactive Entertainment Platforms: PS4	
Performance optimization	
Rendering optimization	
Network support	
God of War III Remastered (https://store.playstation.com/en-us/product/UP9000-	2015
CUSA01623_00-0000GODOFWAR3PS4)	
Developed by Wholesale Algorithms Published by Sony Interactive Entertainment	
Platforms: PS4	
Originally developed by SCE Santa Monica Studio	
Complete port from PS3 to PS4	
60 fps 1080p resolution	
Photo mode	
Hohokum (https://store.playstation.com/en-us/product/UP9000-CUSA00091_00- HOHOKUMGAMEPKG01)	2014
Developed by Honeyslug Published by Sony Interactive Entertainment	
Platforms: PS3, PS4, PSVita	
Development support	
PSVita support	2014
Sonic Boom	2014
Developed by Big Red Button Published by Sega	
Platforms: Wii U	
Al and navigationCamera control	
Sound Shapes (https://store.playstation.com/en-us/product/UP9000-CUSA00090_00-	2012-2014
SOUNDSHAPES00000)	2012-2014

	ns: PS3, PS4, PSVita	
	Port to PS4	
	Port to PSVita	
	Demos and additional DLC	20
	Plan (https://store.playstation.com/en-us/product/UP9000-CUSA00034_00- MEMASTERUS)	20
	ed by <u>Fun Bits Interactive</u> Published by <u>Sony Interactive Entertainment</u>	
	ns: PS4, PSVita	
	Port to PS4	
	Required completing a port of Unity itself to PS4	
	New control systems	
	Johnson's Anything with an Engine	20
	ed by <u>Isopod Labs</u> Published by <u>Autumn Games</u>	20
-	ns: PS3, Wii, Xbox 360	
	Nintendo Wii support	
	Var Collection	20
	ed by <u>Bluepoint Games</u> Published by <u>Sony Interactive Entertainment</u>	20
	ns: PS3	
	Originally developed by SCE Santa Monica Studio	
	Ported by Bluepoint from PS2 to PS3	
	Particle system porting	
	Development support	
pyborg	·	20
	ed by Bionic Games Published by <u>Capcom</u>	20
latforn		
	Technical Direction	
	Engine Development	
	Gameplay Programming	
	Nintendo Wii support	
	I Alert 3 Commander's Challenge	20
	ed by <u>Electronic Arts</u> Published by <u>Electronic Arts</u>	20
	ns: PS3, Xbox 360	
	PlayStation support	
	I Alert 3 (https://www.ea.com/games/command-and-conquer/command-and-	20
	-red-alert-3)	20
	ed by <u>Electronic Arts</u> Published by <u>Electronic Arts</u>	
	ns: PC, Mac, PS3, Xbox 360	
	PlayStation support	
	Performance optimization	
	Development support	
	nd & Conquer 3: Tiberium Wars	20
	ed by <u>Electronic Arts</u> Published by <u>Electronic Arts</u>	_,
	ns: PC, Mac, Xbox 360	
latforn	Xbox 360 support	
	Multithreading rendering	
•		
•		
•	Performance optimization	
•	Performance optimization Development support	20
• • • atchet	Performance optimization Development support & Clank: Size Matters	20
atchet	Performance optimization Development support & Clank: Size Matters ed by <u>High Impact Games</u> Published by <u>Sony Interactive Entertainment</u>	20
atchet evelop latforn	Performance optimization Development support & Clank: Size Matters ed by <u>High Impact Games</u> Published by <u>Sony Interactive Entertainment</u> as: PSP	20
atchet evelop latforn	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment as: PSP Gameplay development	20
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atchet evelop latforn X Ofli ung Fi evelop	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment as: PSP Gameplay development Development support IX Panda ed by Luxoflux Published by Activision	
eatchet evelope latforn XOfli (ung Fu evelope	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment ns: PSP Gameplay development Development support IX Panda ed by Luxoflux Published by Activision ns: PS3, Xbox 360	
eatchet evelop latforn wofli ung Fu levelop latforn	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment as: PSP Gameplay development Development support IX Panda ed by Luxoflux Published by Activision as: PS3, Xbox 360 Managing engineering team	
Ratchet Develop Platforn WOFL (ung Fu Develop Platforn	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment ns: PSP Gameplay development Development support IX Panda ed by Luxoflux Published by Activision ns: PS3, Xbox 360 Managing engineering team Overseeing engine development	20
Ratchet Develop Platforn XOFU (ung Fu Develop Platforn	Performance optimization Development support & Clank: Size Matters ed by High Impact Games Published by Sony Interactive Entertainment as: PSP Gameplay development Development support IX Panda ed by Luxoflux Published by Activision as: PS3, Xbox 360 Managing engineering team	

Develo	Crime New York City oped by Luxoflux Published by <u>Activision</u>	2005
Platfo	rms: PS2, Xbox, GameCube	
•	Managing engineering team	
•	Managing missions team	
Shrek		2004
Platfo	oped by Luxoflux Published by <u>Activision</u> rms: PS2, Xbox, GameCube	
•	Managing engineering team	
•	Playable character controls Camera controls	
True	Crime Streets of LA	2003
	oped by Luxoflux Published by <u>Activision</u>	2003
	rms: PS2, Xbox, GameCube	
·	Gameplay programming	
	nniac Games	
Develo	: Year of the Dragon oped by <u>Insomniac Games</u> Published by Universal Interactive rms: PlayStation	2000
Fiation	Playable character controls	
	Cameras	
	Gameplay programming	
	Numerous contributions to engine and gameplay development	
	2: Ripto's Rage	1999
	oped by <u>Insomniac Games</u> Published by Universal Interactive	1000
	rms: PlayStation	
•	Playable character controls	
	Cameras	
•	Gameplay programming	
•	Numerous contributions to engine and gameplay development	
Spyro	the Dragon	1998
	oped by Insomniac Games Published by Universal Interactive	
	rms: PlayStation	
•	Playable character controls	
•	Cameras	
•	Gameplay programming	
•	Numerous contributions to engine and gameplay development	
Black	Ops Entertainment	
	ures of the Deep	1998
	oped by <u>Black Ops Entertainment</u> Published by <u>Namco</u>	.,,,,
	rms: PlayStation	
•	Playable character controls	
	Cameras	
•	Gameplay programming	
	Numerous contributions to engine and gameplay development	
Black		1996
	oped by <u>Black Ops Entertainment</u> Published by <u>Namco</u> rms: PlayStation	
•	Development support	
	ANVADDO	
	AWARDS	

British Academy Film Awards (<u>BAFTA</u>)
The most prestigious global awards for excellence in games

The Webby Awards (Webby)
The leading international award honoring excellence on the Internet.

Golden Joystick Awards

the longest-running video game award ceremony, launched in 1983.

Kentucky Route Zero BAFTA Best Original Property W. Live Book Control of the Co	2021
 Webby Best Game Design Outer Wilds BAFTA Best Game BAFTA Game Design BAFTA Best Original Property Golden Joystick Best Indie Game Webby People's Voice 	2020
• BAFTA Best Debut Game	2018
RESEARCH	
 NASA Langley Research Center Designed and programmed a 2D graphical display and interface engine for real-time network data Designed and programmed an editor for building specialized 2D displays and interfaces for the above engine Designed and programmed a 3D simulation renderer for real-time and recorded data 	1992 - 1995
 Explorations of novel aerodynamic controls for a tailless X-31 configuration Pulsed pneumatic controls on aircraft forebody St. Louis University Shooting method analysis of the Schrödinger equation for a hydrogen atom in 2D PRESENTATIONS	1990 - 1991
Resume Workshop at USC Makers of Entertaining Games Association (MEGA) • Strategies to land a job in Video Game Programming • Finding opportunities • Optimizing your resume	2022
 Building your network USC Game Design Workshop Lessons learned from decades of successful gameplay programming Presentation to video game programming and design students Effective team organization Effective communication 	2015
Communicating with Game Designers at Electronic Arts Redwood City Lessons learned from decades of successful gameplay programming Presentation to professional video game programmers Large game studio Design considerations for software engineers Effective communication with other disciplines	2009
 The Secrets of Spyro at Sony PlayStation Developer Conference Presentation to professional video game developers Innovative technical aspects of the Spyro game code Unique PlayStation hardware considerations "Cylcorama" background graphics Rendering the "Cylcorama Portal" portals Using the "Cyclorama Portals" to mask level transitions 	1999

CONFERENCES ATTENDED	
Tapia Conference (<u>Tapia</u>)	2023
Computing from all backgrounds and ethnicities	
SIGSCE Technical Symposium (SIGCSE)	2023
The Technical Symposium on Computer Science Education	
Electronic Entertainment Expo (E3)	1996-2019
Video game industry trade event	
Organized by the Entertainment Software Association (<u>ESA</u>)	0006 0010 0010
Game Developers Conference (GDC)	2006, 2012, 2019
Game industry's premier professional event Unite	2018
Video game industry trade event	2016
Unity Technologies	
Educational Workshops	
Sony PlayStation Developer Conference	1997, 1999, 2008, 2012,
Video game industry trade event	2014
Sony gaming console specific details	2014
Educational Workshops	
Nintendo Developer Conference	2008
Video game industry trade event	2300
Nintendo gaming console specific details	
Educational Workshops	
MENTORSHIP	
Neha Sharma	Fall 2024
Information Technology Practicum	=== :
Videogame Production	
Richard Tao	Summer 2024
ENGR-395 Internship	
Respawn Entertainment	
 Refactor the Spline Camera System for Star Wars Jedi 	Summer 2023
Colin Ho	Summer 2023
ENGR-395 Internship	
• Stripe	
King Zhou	Summer 2023
ENGR-395 Internship	
Ripple Effect Studios	Foll 2022 - Carrier - 2002
Megan Friedenberg	Fall 2022 – Spring 2023
Directed Research Advanced Rendering Techniques in DirectV	
Advanced Rendering Techniques in DirectX Sources & Check	Eall 2022 Caring 2022
Souporno S Ghosh • Directed Research	Fall 2022 – Spring 2023
Integration of Speech-to-Text and Text-to-Speech into a video game Natural language speech generation for NPC responses to guestions.	
Natural language speech generation for NPC responses to questions User research to evaluate how players respond to this unique approach.	
 User research to evaluate how players respond to this unique approach Varun Peesapati 	Fall 2022 – Spring 2023
Directed Research	i an 2022 – Spiniy 2023
 Integration of Speech-to-Text and Text-to-Speech into a video game Natural language speech generation for NPC responses to questions 	
 User research to evaluate how players respond to this unique approach 	
Rishi Prakaash Srinivasan Mohan	Fall 2022 – Spring 2023
Directed Research	1 an 2022 Spiniy 2023
 Integration of Speech-to-Text and Text-to-Speech into a video game 	
Natural language speech generation for NPC responses to questions	
 User research to evaluate how players respond to this unique approach 	
	0
Shixilan Zhand	Shring 71177
Shixuan Zhang • Directed Research	Spring 2022

Advanced Rendering Techniques in DirectX

Batu Aytemiz Fall 2021 – Spring 2022

• MFA Student at the University of California Santa Cruz

Reinforcement Learning for Level Design

Leon Huang

- Blind Game Development Student
- Directed Research
- Extend Unreal Engine with support for visually disabled developers
- Upon graduation, Leon's research project landed him a job at Epic Games developing support for the visually disabled in Unreal Engine!

Spurpunk – Commercial game by Easley Dunn Games provides OPT and experience for students and recent graduates

Spring 2018 - Spring 2022

Fall 2018

- William Gaultier
- Hongji Ye
- Sean Hu
- Jitin Sawant
- Ryan Stevenson
- Nicholas DeFrank
- Vyas Varun

Robot Race – Commercial game by Easley Dunn Games provides OPT and experience for students and recent graduates

Fall 2021 - Fall 2024

- David He
- Hsuan-Chi (lan) Lee
- Yaorong Xie
- Yunrui (Ray) Shao
- Wentao Zhou
- Tianning Li
- Haotai Ye
- Chen Yikun
- Da (Hank) Gong
- Wenyu Xu
- Yiting (Stella) Wang
- Mingxuan (Marco) Ma
- Xiang Chen
- Xinhui (Haylee) Shen
- Zijian An
- Zihao Han
- Minghao Lian
- Navapat Nananukul
- Jiexin Qin
- Sabrina Weng
- Liuyi Yang