HENRIQUE TELES MAIA

henrique@cs.columbia.edu
http://henrique.is/here

EDUCATION

Columbia University – Graduate Studies
Ph.D. Candidate, Computer Science — 2017- Present
Advisors: Eitan Grinspun & Changxi Zheng
NSF Graduate Research Fellow & GEM Research Fellow
Thesis: *Harnessing Simulated Data with Graphs*

M. Phil, Computer Science (4.00) — Sept 2021
M.S, Computer Science (4.17) — May 2017

Columbia University– Dual Bachelor's Program
B.A., Computer Science (3.58) — May 2015
B.S., Mechanical Engineering (3.70) — May 2015

RESEARCH EXPERIENCES

Columbia Computer Graphics Group — Jan 2018 - Present
Graduate Researcher & Teaching Assistant — New York, NY
Mentors: Changxi Zheng & Eitan Grinspun
Topics: Information tagging, Neural Networks, Security, Simulation

University of Tokyo — Sept 2017 – Dec 2017
Visiting Scholar — Kashiwa, Japan
Mentor: Yonghao Yue
Topics: Hybrid discrete-fluid grain simulation, machine learning

University of Texas at Austin — Sept 2015 – Mar 2016
Visiting Scholar — Austin, TX
Mentor: Etienne Vouga
Topics: Tunneling free contact resolution, kinetic data structures

Columbia Makerspace — 2014 - 2018
Superuser — New York, NY
Advisor: Mohammed Haroun, Bill Miller
Topics: 3D Printing, Laser cutting, CNC machining, G-code

Columbia University — 2013-2014
Undergraduate Research Assistant — New York, NY
Mentors: Peter Allen, Eitan Grinspun
Topics: Assistive robotics, landslide simulation

PUBLICATIONS

Henrique Teles Maia, Changxi Zheng, Eitan Grinspun.
Data Driven Hair Simulation. in submission 2022

Watkins-Valls, D., **Maia H**., Varley J., Seshadri M., Sanabria J., Waytowich, N., & Allen, P.
Mobile Manipulation Leveraging Multiple Views. Submitted to ICRA 2022

Henrique Teles Maia, Chang Xiao, Dingzeyu Li, Eitan Grinspun, Changxi Zheng.
Can one hear the shape of a neural network?: Snooping the GPU via Magnetic Side Channel.
USENIX Security 2022

Henrique Teles, Maia, Dingzeyu Li, Yuan Yang, Changxi Zheng.
LayerCode: Optical Barcodes for 3D Printed Shapes. ACM SIGGRAPH 2019

Yun (Raymond) Fei, **Henrique Teles Maia,** Christopher Batty, Changxi Zheng, Eitan Grinspun. A Multi-Scale Model for Simulating Liquid-Hair Interactions. ACM SIGGRAPH 2017

C. Hung, C.P.Stark, H. Capart, B. Smith, **H. Teles Maia**, L Li and M. Reitz. Bedrock erosion by sliding wear in channelized granular flow. American Geophysical Union Fall 2014

C. P. Stark, C. Hibert, G. Ekstrom, M. Reitz, B. Smith, E. Grinspun, **H. Teles Maia**, and D. Kaufman. Landslide dynamics from seismology and simulation. Modeling Granular Media Across Scales 2014

INDUSTRY EXPERIENCE

Disney Animation Studios May 2017 – Sept 2017
Research Intern Los Angeles, CA
Manager: Rasmus Tamstorf
Topics: Efficient hair simulation, constraint optimization, code release

Adobe Systems inc. June 2015- Sept 2015
Creative Technologies Lab intern Seattle, WA
Manager: Danny Kaufman
Topics: Discrete elastic rod simulation, efficient large-scale n-body problems

1stDibs May 2013 – Sept 2013
Backend Software Developer New York, NY
Managers: Vadim Leyzerovich, Ross Paul
Topics: Automating Email services, tools

Meta Jan 2013 – May 2013
Software Developer New York, NY
Managers: Austin Reiter, Meron Gribetz
Topics: Augmented Reality, hand tracking

PROJECTS

Neural Dynamics, with Peter Chen and G Pershing
Model reduction for simulation via learned deformation maps

Fast Hair, with Peter Chen, Mengxuan Li, Logan Wang
GPU acceleration of discrete elastic rod simulation code

Automated Air Hockey
Designed, manufactured, and prototyped a robotic air-hockey opponent

BrickBreakAR
Lead Engineer on 3D Augmented Reality rendition of Brick Breaker

Ray-Tracers & Pipeline Renders
Featuring reflection, soft shadows, Bezier surfaces, Monte-Carlo methods

Linger
Award winning app allowing for continued access to basic services when your phone dies

Graph Domain Language
Language designed to robustly facilitate graphs, decision trees, and automata

HONORS & AWARDS

- NSF Research Fellow
- GEM Research Fellow
- Ford Foundation Fellow Honorable Mention

- Columbia Design Expo – 1st Place for Automated Air-Hockey Robot entry
- CS Dept. Ph.D. Service Award (2019 & 2020)
- Lapin d'Or – First place Columbia Computer Animation competition
- Twilio Award – DevFest 2014
- RoboRace 2013 Finalist
- St Lawrence Community Service Award

CONFERENCES ATTENDED

ACM Symposium Computational Fabrication: 2019
ACM Symposium Computer Animation: 2015, 2017, 2019
ACM SIGGRAPH: 2014 - 2021
TWIG (Tri-State Workshop on Imaging and Graphics): 2014-2015

DEMOS & TALKS

Symposium on Computational Fabrication Poster	Carnegie Mellon Uni. 2019
Thesis Proposal: Harnessing Simulated Datasets with Graphs	Columbia Uni. 2021
Candidacy Presentation: Can We Learn to Sim?	Columbia Uni. 2019
Research Internship Presentation – Disney Animation	Los Angeles 2017
University of Texas at Austin Talk	UT Austin 2016
Research Internship Presentation – Adobe Research	Seattle 2015
SIGGRAPH Intel Demo Booth	Los Angeles 2015
SIGGRAPH Tangible Modular Input Devices, booth	Vancouver, CA 2014

Industry Research Discussions: Nvidia • IKEA • Weta Digital
Pixar • Snap Research • Disney Animation
Adobe Systems • Blue Sky Studios

TEACHING EXPERIENCES

Computer Animation – guest lecture and head teaching assistant
Computer Graphics – teaching assistant
edX Columbia (MOOC) Computer Animation Course – head teaching assistant

MENTORSHIP

Carlos Enrique López Garcés
Adrish Dey
Klint Qinami → Princeton University
Mengxuan Li
G Pershing
Logan Wang
Drew Feldman → University College London
Raphael Charrondiere → ENS Lyon
Simon Anuszczyk → Caltech
Tyler St Dennis → Berkeley
Michael Falkenstein → Disney Animation Studios
Vaibhav Siva Vavilala → Pixar Animation

SKILLS

Research:	Physics-based Simulation • Machine Learning • Graphics Tagging • 3D Printing • Vision • Security • GPUs
Languages:	C++, Python, MATLAB, C, Java, CUDA, OpenGL, LaTeX
Operating Systems:	MacOS, Linux/Ubuntu, Windows
Frameworks:	Tensorflow • PyTorch • Fusion 360 • Unity3D Modo • PTC Creo • Git • OpenCV • Houdini
Communication:	English (fluent) • Portuguese (fluent) • French (basic) • Spanish (basic)

PROFESSIONAL SERVICE

ACM SIGGRAPH Research Career Development Committee (RCDC) Grad School Mentor
NSF Fellowship Mentor
ACM SIGGRAPH Reviewer
IEEE T-ASE reviewer
Campus Day Organizer: Columbia University, UT Austin
MS Application Review Committee: Columbia University
ACM SIGGRAPH Posters Committee: Volunteer

REFERENCES

Eitan Grinspun
Changxi Zheng
Shree Nayar
Dingzeyu Li