Mark Gillespie

Curriculum Vitae

Education

2018–2024 **PhD Computer Science**, *Carnegie Mellon University*, Pittsburgh
Advisor: Keenan Crane. Topics: geometry processing, computer graphics

2014–2018 **B.S. Computer Science, Mathematics**, *California Institute of Technology*, Pasadena
Double major. GPA: 4.1

Publications

[7] **Mark Gillespie**, Denise Yang, Mario Botsch, and Keenan Crane. 2024. Ray tracing harmonic functions. *ACM Transactions on Graphics*, 43, 4, Article 99, (July 2024), 18 pages. DOI: 10.1145/3658201.

[6] Yuichi Hirose, **Mark Gillespie**, Angelica M. Bonilla Fominaya, and James McCann. 2024. Solid knitting. *ACM Transactions on Graphics*, 43, 4, Article 88, (July 2024), 15 pages. DOI: 10.1145/3658123.

[5] Nicole Feng, **Mark Gillespie**, and Keenan Crane. 2023. Winding numbers on discrete surfaces. *ACM Transactions on Graphics*, 42, 4, Article 36, (July 2023), 17 pages. DOI: 10.1145/3592401.

[4] Hsueh-Ti Derek Liu, **Mark Gillespie**, Benjamin Chislett, Nicholas Sharp, Alec Jacobson, and Keenan Crane. 2023. Surface simplification using intrinsic error metrics. *ACM Transactions on Graphics*, 42, 4, Article 118, (July 2023), 17 pages. DOI: 10.1145/3592403.

[3] **Mark Gillespie**, Nicholas Sharp, and Keenan Crane. 2021. Integer coordinates for intrinsic geometry processing. *ACM Transactions on Graphics*, 40, 6, Article 252, (Dec. 2021), 13 pages. DOI: 10.1145/3478513.3480522.

[2] Nicholas Sharp, **Mark Gillespie**, and Keenan Crane. 2021. Geometry processing with intrinsic triangulations. SIGGRAPH '21, (July 2021). DOI: 10.1145/3450508.3464592.

[1] **Mark Gillespie**, Boris Springborn, and Keenan Crane. 2021. Discrete conformal equivalence of polyhedral surfaces. *ACM Transactions on Graphics*, 40, 4, Article 103, (July 2021), 20 pages. DOI: 10.1145/3450626.3459763.

Experience

2018–2024 **Graduate Researcher**, *Carnegie Mellon University*, Advisor: Keenan Crane

July 2023 **Visiting Researcher**, *Technische Universität Berlin, Berlin*, Host: Boris Springborn

Summer 2022 **Visiting Graduate**, *University of California, San Diego*, Host: Albert Chern

Summer 2017 **Arthur R. Adams Undergraduate Researcher**, *Caltech*, Mentor: Peter Schröder

Summer 2016 **Arthur R. Adams Undergraduate Researcher**, *Caltech*, Mentor: Mathieu Desbrun

2016–2017 **Undergraduate Researcher**, *Caltech*, Mentor: Alan Barr

Summer 2015 **Software Engineering Intern**, *Google*

Selected Talks

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0009-0000-5645-9636 • google scholar

Sept. 2023 **Intrinsic Triangulations in Geometry Processing**, *IST Austria*

Aug. 2023 **Intrinsic Triangulations in Geometry Processing**, *Geometry Workshop in Obergurgl*

Jul. 2023 **Intrinsic Triangulations in Geometry Processing**, *TU Berlin SFB TRR 109 Colloquium*

Apr. 2022 **Discrete Conformal Equivalence of Polyhedral Surfaces**, *UCSD Pixel Cafe*

Nov. 2021 **Integer Coordinates for Intrinsic Geometry Processing**, *ACM SIGGRAPH Asia 2021*

Aug. 2021 **Discrete Conformal Equivalence of Polyhedral Surfaces**, *ACM SIGGRAPH 2021*

Aug. 2021 **Geometry Processing with Intrinsic Triangulations**, *ACM SIGGRAPH 2021 Courses*

June 2021 **Geometry Processing with Intrinsic Triangulations**, *SIAM International Meshing Roundtable Courses (IMR 2021)*

Awards & Fellowships

2019-2022 NSF Graduate Research Fellowship

2016-2017 Arthur R Adams SURF Fellow

2017 SIGGRAPH ACM Turing Award Celebration Grant

Service

Departmental Organizer, Graphics Reading Group (2022-2023); Organizer, Graphics Seminar (2020-2021); Panel Speaker (CSD Visit Day 2020, 2023, CSD Introductory Course 2022)

Reviewing SIGGRAPH (2019, 2022, 2023, 2024), SIGGRAPH Asia (2022, 2023, 2024), Eurographics (2024), Computer-Aided Design (2023), Transactions on Visualization and Computer Graphics (2023, 2024), Computers & Graphics (2021)

Mentorship Summer Geometry Initiative volunteer (2024), Advising Master's student (2022-2023), CMU Summer Undergraduate Research Fellowship (2020)

Programming Languages

C++, Mathematica, Python, Java, Matlab, Haskell, Ocaml, LaTeX