Benjamin Biggs

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SUMMARY

Research Scientist at **Luma AI**, working on **Uni-1**, a unified understanding and generation model. Previously tech lead for image/video post-training at **Amazon AGI**, working on **Amazon Nova** and **Titan Image Generator**. PhD in Computer Vision & Deep Learning from the **University of Cambridge**, focused on 3D reconstruction of human and animal categories. Multiple first-author publications at top-tier conferences. EB1-A Green Card holder.

EXPERIENCE

Luma AI　　　　San Francisco, USA
Research Scientist　　　　*Feb. 2026 – Present*

- Core contributor to **Uni-1**, Luma's unified understanding and generation model combining reasoning with visual imagination in a single decoder-only autoregressive transformer.
- Developed temporal capabilities for storyboard and video rendering.

Amazon AGI　　　　San Francisco, USA
Senior Applied Scientist, Amazon Nova　　　　*Apr. 2024 – Dec. 2025*

- Tech lead for image/video post-training on **Amazon Nova 2 Omni**.
- Tech lead for cross-organizational team focused on real-time video-audio generation for Amazon Nova 1, and core contributor to **Nova Canvas** (text-to-image) and **Nova Reel** (text-to-video) models.

Amazon AWS　　　　San Francisco, USA
Applied Scientist II　　　　*Oct. 2021 – Apr. 2024*

- Key contributor to **Titan Image Generator**, Amazon's flagship text-to-image diffusion model. Led post-training SFT strategy, data & architecture ablations, and patent filing for outfit virtual try-on.
- Published **Diffusion Soup** paper at ECCV 2024.

Facebook AI Research　　　　London, UK
AI Research Intern　　　　*Jun. 2019 – Nov. 2019*

- Supervised by Andrea Vedaldi, worked on an end-to-end deep learning system for reconstructing humans in 3D from ambiguous/challenging monocular images. Paper achieved a Spotlight at NeurIPS 2020.

GlaxoSmithKline　　　　Stevenage, UK
AI Research Consultant　　　　*Jun. 2014 – Oct. 2021*

- ML consultant and leadership team member for an innovation group. Led projects on action recognition, machine setting optimization, and defect detection. Filed a patent.

EDUCATION

PhD in Computer Vision and Machine Learning　　　　Supervisors: Andrew Fitzgibbon & Roberto Cipolla
The University of Cambridge　　　　*2017 – 2021*

- Research focused on developing methods for 3D reconstruction and tracking for challenging categories such as humans and animals.

BSc in Discrete Mathematics (81.4%) – First Class Honours
The University of Warwick　　　　*2012 – 2016*

- Best Overall Graduating BSc student in Discrete Mathematics and Best Final Year Project Prize.

Model Launches

Luma AI. "Uni-1: A Unified Understanding and Generation Model." *Luma AI*, 2026.

Amazon AGI. "Amazon Nova 2 Omni." *Amazon Science*, 2025.

Amazon AGI. "The Amazon Nova Family of Generative Models." *Amazon Science*, 2024.

AWS Bedrock. "Amazon Titan Image Generator." *AWS*, 2023.

Publications

B. Biggs*, A. Seshadri*, Y. Zou, A. Jain, A. Golatkar, Y. Xie, A. Achille, A. Swaminathan, S. Soatto. "Diffusion Soup: Model Merging for Text-to-Image Diffusion Models." *ECCV*, 2024.

B. Biggs, S. Ehrhadt, H. Joo, B. Graham, A. Vedaldi, D. Novotny. "3D Multi-bodies: Fitting Sets of Plausible 3D Human Models to Ambiguous Image Data." *NeurIPS*, 2020. **Spotlight.**

B. Biggs, O. Boyne, J. Charles, A. Fitzgibbon, R. Cipolla. "Who Left the Dogs Out? 3D Animal Reconstruction with Expectation Maximization in the Loop." *ECCV*, 2020.

B. Biggs, T. Roddick, A. Fitzgibbon, R. Cipolla. "Creatures Great and SMAL: Recovering the Shape and Motion of Animals from Video." *ACCV*, 2018. **Oral.**

R. Sarkar, A. Dave, G. Medioni, **B. Biggs**. "Shape of You: Precise 3D Shape Estimations for Diverse Body Types." *CVPR-W*, 2023. **Oral.**

T. Roddick, **B. Biggs**, D.O. Reino, R. Cipolla. "On the Road to Large-Scale 3D Monocular Scene Reconstruction." *ICCV-W*, 2021.

Full publication list: benbiggs.co.uk

Patents

B. Biggs, P. Pinette, C. Kothari, C. Cagampan, A. Dave, S. Sun, G. Medioni. "Virtual Try-On with Outfit Layer Mask." *US Patent US18/067,597*, 2024.

B. Biggs, P. Hyett, A. Bhalerao. "Kinect Gowning Application." *Patent WO/2018/109048*, 2018.

Technical Skills

Generative AI: Multi-modal LLMs, diffusion models (image & video), GANs
Computer Vision: 3D reconstruction (SMPL, NeRFs), object detection, keypoint estimation, segmentation
Languages: Python, C++/C, C# .NET, MATLAB, Java, JavaScript, PHP, LaTeX
Frameworks: PyTorch, PySpark, custom CUDA kernels/extensions
Tools: Git, Unix (Ubuntu, RedHat, Fedora), SLURM/HPC, Agile/TDD
Leadership: Research team supervision, PhD intern mentorship, conference presentations (NeurIPS, ACCV), invited talks (Epic Games, UC Berkeley, NIH)

Other

EB1-A Green Card – permanent resident in the USA granted for extraordinary ability.

References

Available on request.