David Sarma
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SUMMARY

- Pipeline Architect and Visualization Designer (UX)
- Holder of two US patents in image/signal processing for anomaly detection
- Technical support and writing for scientific research communications (NASA-GISS)
- Graphic & Motion Design (Cultures of Resistance), UI/UX (CaseRails)
- VFX Technical Director for films, commercials, and music videos (Framestore, Box Studios)

Work Interests: Pipeline Architecture and Visualization Design (UX); AWS Cloud Practitioner; Addressing workflow and communication gaps between project stakeholders, design, and development

EXPERIENCE

Pipeline Architect   Jan 2013 - Present
David Sarma Holdings, LLC
- Design of browser-based and AWS (EC2, Lambda) image, signal, and data processing pipelines
- Granted two patents (US-9881408-B2 and US-10319131) for an image/signal processing method for anomaly detection, with production use in film and video retouching
- UI/UX for signal analysis application based on Alpaca stock trading API
- Development of an HTML5 Smalltalk-like visualization and UI development environment

Training:	AWS Cloud Practitioner: EC2 and Serverless pipelines	(Per Scholas, 2024)
Applications:	Stock tracking application, UI Prototyping environment	(2021, 2022)
Patents:	Digital signal processing for image filtering field	
	(US-9881408-B2: 2018, US-10319131: 2019)	(2018, 2019)
Projects:	NIH/NCBI - Segmentation in Microscopy Images	(2018)
	IEEE VAST Challenge - Design review	(2013, 2016)
Proposals:	IARPA-BAA-13-07 - Improving Facial Representations	(2013)
	IARPA-RFI-13-02 - Perception and Computing	(2013)
Tools used:	Javascript (Canvas, WebGL, SVG; D3, Vue), Python (NumPy), R;	
	Figma, Houdini, Nuke, Photoshop, Jupyter/Colab	

Freelance Visualization Designer: VFX Pipeline Development, UX   May 2005 - Present
Clients: Cultures of Resistance, Box Studios, Framestore, Phosphene, CaseRails
- UI/UX Design: Reconcile end-user issues against backend data structure constraints, in a structure editor application for creation and management of legal documents
- Pipeline: Skin retouching & color correction pipelines, Project timeline & asset tracking
- 2D & 3D Design: Procedural modeling, rendering, development of logos, photo editing
- 3D FX: Physical simulations and lighting for commercial VFX
- Compositing: Compositing and retouching for music videos, films, and commercials
- Sculpture: 3D scanning, mesh editing, technical support for CNC milling and mold-making (Rapidform, Solidworks, Rhino)

UI/UX Design:	CaseRails (UI), Box Studios (retouching tool UX), Framestore (Houdini asset UX)
Print Design:	H. Theophile (product catalog), Embassy Row - Dropping Andrew (pitch package)
Web Design:	Capsule Studio, NY Event Space (websites)
Retouching:	Madonna "Give Me All Your Luvin" (music video), Calvin Klein "Push Positive" (TV ad)
Compositing:	Tower Heist, The Sitter, Not Fade Away, The Immigrant (feature films)
	50 Cent "Gatman and Robbin" (music video)
Tools used:	Houdini, Maya, Nuke; Adobe After Effects, Illustrator, Photoshop;
	HTML/CSS, Javascript (Canvas, WebGL, SVG; P5, D3), Python

Motion Graphics Designer   Feb 2010 - Jun 2011
Cultures of Resistance
- Motion graphics, graphic design, brand development over multiple short films and print collateral
- Pipeline development: Creation of custom font, graphical templates, debugging of encoding issues

Projects:	Muslimgauze, Midnight on the Mavi Marmara, Cluster Munitions, Katibe 5,
	Shadia and Lowkey (short films)
Tools used:	After Effects, Illustrator, Photoshop, Final Cut

Research Technical Support   2000 - 2003, Jan 2009 - Dec 2009
NASA-Goddard Institute for Space Studies

- Managed datasets on methane emissions, tracked uncertainties in research on fossil fuel sources
- Developed scripts to capture sequences of data transformations, to help with auditing of operations on input data sources
- Technical support for scientific research communications: graphic design, data visualization, and prototyping tools
- Assisted with research and expository writing on methane emissions; developed website and educational materials providing information on greenhouse gasses (1997-2003)

Projects: Global Methane Inventory (dataset, 1997-2003)
                Contribution of Changing Sources and Sinks to the Growth Rate of Atmospheric
                Methane Concentrations for the Last Two Decades (research report, 2000)
Tools used: Excel; Python, HTML/CSS/Javascript

FX Technical Director   Jun 2008 - Dec 2008
Framestore

- 3D FX: Animation, lighting, and compositing for TV commercial projects
- Developed CG fluid simulation and particle effect rigs
- Developed custom procedural tools to generate collision geometry

Projects: Bridgestone "Hot Item", Lowes "Trim a Tree", GE "Crane" (TV ads)
Tools used: Houdini, Maya, Nuke; Python

DVD Quality Assurance   Jan 2004 - Aug 2007
Sony Music Entertainment

- Quality checks for content and encoding of Sony Music and Sony Wonder DVD releases.

SKILLS

Programming Languages (10+ years):
Languages: Javascript (HTML/CSS/SVG, Canvas, WebGL; Node.js), Python
Environments: Jupyter, Colab, VSCode, RStudio; Houdini, Nuke
Familiar with: SQL, R, Nim, C, Wasm, GLSL

Visualization and Design (10+ years):
Markup: HTML/CSS/SVG, LaTeX
Software: Figma, Adobe Suite (Illustrator, Photoshop, After Effects); Houdini, Maya, Nuke, Excel
Familiar with: Blender, Gimp, Inkscape, Godot Engine, QML (PySide)

Prototyping Technologies:
Visualization: D3, P5, Vue; ImGui, ImageJ
Numerical Computing: NumPy, Matplotlib, Scikit-Image, PyTorch; OpenCV.js, Tensorflow.js
Data Management: SQLite, MongoDB, Excel, Pandas, Puppeteer, Google Docs Apps Script
Deployment: AWS (EC2, Lambda, Edge), Cloudflare, Docker

EDUCATION

Certificate (2024), Amazon Web Services Cloud Practitioner   Per Scholas, New York, NY
Master of Fine Arts (2008), MFA Computer Art   School of Visual Arts, New York, NY
Bachelor of Arts (2002), BA Applied Mathematics   New York University, New York, NY

INTERESTS

Fixed gear bike tricks, Swimming, Breaking/House dancing, photography, drawing; Ableton, Godot Engine, Blender Geometry Nodes, Elixir/Erlang