Gopala K. Anumanchipalli, PhD

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DISCIPLINARY FIELDS

Speech Neuroscience
Speech/Audio Processing
Artificial Intelligence
Spoken Language Processing
Neural Engineering & Brain-Computer Interfaces
Assistive technologies

PROFESSIONAL POSITIONS

University of California, Berkeley **2021 - Present**
Robert E. and Beverly A. Brooks Assistant Professor
Electrical Engineering & Computer Sciences

University of California, San Francisco **2021 - Present**
Assistant Adjunct Professor, Dept. of Neurological Surgery
Weill Institute for Neurosciences

Computational Precision Health **2021 - Present**
Core Faculty
UC Berkeley & UCSF

University of California, San Francisco , USA **2017 - 2020**
Researcher, Dept. of Neurological Surgery

EDUCATIONAL BACKGROUND

University of California, San Francisco , USA **2013 - 2017**
Postdoctoral Scholar, Dept. of Neurological Surgery

Carnegie Mellon University, USA **2008 - 2013**
PhD in Language and Information Technologies, School of Computer Science

Instituto Superior Técnico, Portugal
PhD in Electrical and Computer Engineering

IIIT-Hyderabad, India **2002 - 2008**
Masters in Computer Science, July 2008
B.Tech in Computer Science (with honors in *Artificial Intelligence*), July 2006

PUBLICATIONS

64. Lian, J., Zhou, X., Guo, C., Ye, Z., Ezzes, Z., Vonk, J., Morin, B., Baquirin, D., Miller, Z., Gorno-Tempini, M. L., **Anumanchipalli, G.**,
"Automatic Detection of Articulatory-Based Disfluencies in Primary Progressive Aphasia",
IEEE Journal of Special Topics in Signal Processing, 2025

63. Liu, Y., Wang, C., Kim, H., Khan, R., **Anumanchipalli, G.**,
"RT-VC: Real-Time Zero-Shot Voice Conversion with Speech Articulatory Coding",
ACL System Demonstration, 2025

62. Gupta, A. , Lu, M., Hartvigsen, T., **Anumanchipalli, G.**,
"Efficient Knowledge Editing via Minimal Precomputation",
ACL Main Conference, 2025

61. Guo, C., Lian, J.,... **Anumanchipalli, G.**,
"Dysfluent WFST: A Framework for Zero-Shot Speech Dysfluency Transcription and Detection"
Interspeech 2025

60. Netzorg, R., Carvalho, N., ..., **Anumanchipalli, G.**,
"On the Production and Perception of a Single Speaker's Gender",
Interspeech 2025

59. Ye, Z., Lian, J., ... **Anumanchipalli, G.**,
"Seamless Dysfluent Speech Text Alignment for Disordered Speech Analysis"
Interspeech 2025

58. Zhou, X., Lian, J., ... **Anumanchipalli, G.**,
"Towards Accurate Phonetic Error Detection Through Phoneme Similarity Modeling",
Interspeech 2025

57. Zhang, J., Zhou, X., ... **Anumanchipalli, G.**,
"Analysis and Evaluation of Synthetic Data Generation in Speech Dysfluency Detection"
Interspeech 2025

56. Erdogan, A., Furuta, H., ...,**Anumanchipalli, G.**, Kuetzer, K., Gholami, A.,
"Plan-and-Act: Structured Execution of LLM Agents for Long-Horizon Web Tasks",
ICML 2025

55. Li, T., Huang. B., ...,**Anumanchipalli, G.**,
"Sounding that object: Interactive Object-aware image to audio generation",
ICML 2025

54. Littlejohn, K., Cho, C. J., ..., Chang, E.,**Anumanchipalli, G.**,
"A streaming brain-to-voice neuroprosthesis to restore naturalistic communication",
Nature Neuroscience, 2025

53. Cheng, K. J., Li, T., **Anumanchipalli, G.**
"Audio Texture Manipulation by Exemplar-based Analogy"
IEEE ICASSP 2025

52. Zhuang, R., Gupta, A., Yang, R., Rahane, A., Li, Z., **Anumanchipalli, G.**
"PokerBench: Training Large Language Models to become Professional Poker Players ",
AAAI 2025

51. Gupta, A., Fang, C., Ozdemir, A., Lu, M., Alaa, A., Hartvigsen, T., **Anumanchipalli, G.**
"Norm Growth and Stability Challenges in Localized Sequential Model Editing"
Workshop on Knowledgable Foundation Models, KnowFM, AAAI 2025 **(Outstanding Paper Award)**

50. Cho, C. J., Lee, N., Gupta, A., Chen, E., **Anumanchipalli, G.**,
"Sylber: Syllabic Embedding Representation of Speech from Raw Audio",
International Conference on Learning Representations, 2025

49. Cho, C. J., Wu, P., Prabhune, T., Agarwal, D., **Anumanchipalli, G.**,
"Articulatory Encodec:
Vocal Tract Kinematics as a Codec for Speech",
IEEE Journal of Special Topics in Signal Processing, 2025

48. Gupta, A., Baskaran, S., **Anumanchipalli, G.**,
"Rebuilding ROME: Resolving Model Collapse During Sequential Model Editing",
EMNLP 2024 [Main Conference]

47. Gupta, A., Sajnani, D., **Anumanchipalli, G.**,
"A Unified Framework for Model Editing",
EMNLP 2024 [Findings]

46. Liu, Y., Yu, B., Lin, D., Wu, P., Cho, C. J., **Anumanchipalli, G.** ,
"Fast, High-Quality and Parameter-Efficient Articulatory Synthesis using Differentiable DSP"
IEEE SLT 2024

45. Zhou, X., Cho, C. J., Sharma, A., Morin, B., Baquirin, D., Vonk, J., Ezzes, Z., Miller, Z., Tee., B. T., Gorno-Tempini, M. L., Lian, J., **Anumanchipalli, G.** ,
"Stutter-Solver: End-to-end Multi-lingual Dysfluency Detection"
IEEE SLT 2024

44. Lian, J., Zhou, X., Ezzes, Z., Vonk, J. M. , J., Morin, B., Baquirin, D., Miller, A. Z., Gorno-Tempini, M. L., **Anumanchipalli, G.**,
"SSDM: Scalable Speech Dysfluency Modelling"
NeurIPS 2024

43. Li, T., Wang, R., Huang, P-Y., Owens, A., **Anumanchipalli, G.**,
"Self-Supervised Audio-Visual Soundscape Stylization",
ECCV 2024

42. Zhou, X., Kashyap, A., Li. S., Sharma, A., Morin, B., Baquirin, D., Vonk, J., Ezzes, Z., Miller, Z., Gorno-Tempini, M. L., Lian, J., **Anumanchipalli, G.**,
"YOLO-Stutter: End-to-end Region-Wise Speech Dysfluency Detection",
ISCA Interspeech 2024

41. Netzorg, R., Cote, A., Koshin, S., Garoute, K., **Anumanchipalli, G.**,
"Speech After Gender: A Trans-Feminine Perspective on Next Steps for Speech Science and Technology",
ISCA Interspeech 2024

40. Wu, P., Kaveh, R., Nautiyal, R., Zhang, C., Guo, A., Kachintaya, A., Mishra, T., Yu, B., Black, A., Muller, R., **Anumanchipalli, G.**
"Towards EMG-to-Speech with Necklace Form Factor",
Interspeech 2024

39. Jain, R., Yu, B., Wu, P., Prabhune, T, **Anumanchipalli, G.**,
"Multimodal Segmentation for Vocal Tract Modeling",
Interspeech 2024

38. Gupta, A., Rao, A., **Anumanchipalli, G.**,
"Model Editing at Scale leads to Gradual and Catastrophic Forgetting",
ACL 2024 [Findings]

37. Lee, N., Wattanawong, T., Kim, S., Mangalam, K., Shen, S., **Anumanchipalli, G.**, Mahoney, M., Keutzer, K., Gholami, A.,
"LLM2LLM: Boosting LLMs with Novel Iterative Data Enhancement",
ACL 2024 [Findings]

36. Lian, J., **Anumanchipalli, G.**
" Towards Hierarchical Spoken Language Dysfluency Modelling "
EACL 2024

35. Netzorg, R., Yu, B., Guzman, A., Wu, P., McNulty, L, **Anumanchipalli, G.**,
"Towards an interpretable representation of speaker identity via perceptual voice qualities",
IEEE ICASSP 2024

34. Cho, C. J., Mohamed, A., Li, S-W., Black, A. W., **Anumanchipalli, G.**,
"SD-HuBERT: Self-Distillation Induces Syllabic Organization in HuBERT",
IEEE ICASSP 2024

33. Cho, C. J., Mohamed, A., Li, S-W., Black, A. W., **Anumanchipalli, G.**,
"Self-Supervised Models of Speech Infer Universal Articulatory Kinematics",
IEEE ICASSP 2024

32. Lian, J., Feng, C., Farooqi, N., Li, S., Kashyap, A., Cho, C. J., Wu, P., Netzorg, R., Li, T., **Anumanchipalli, G.**
"Unconstrained Dysfluency Modeling for Dysfluent Speech Transcription and Detection",
IEEE Workshop on Automatic Speech Recognition and Understanding, 2023 **(Best Paper Nominee)**

31. Netzorg, R., Jalal, A., McNulty, L., **Anumanchipalli, G.**,
"PerMod: Perceptually Grounded Voice Modification with Latent Diffusion Models",
IEEE Workshop on Automatic Speech Recognition and Understanding (ASRU), 2023

30. Metzger, S., Littlejohn, K., Silva, A., Moses, D., Seaton, M., Wang, R., , Dougherty, M., Liu, J., Wu, J., Berger, M., Zhuravleva, I., Tu-Chan, A., Ganguly, K., **Anumanchipalli, G.,** Chang, E. F.
"A high-performance neuroprosthesis for speech decoding and avatar control"
Nature, 2023, **#2nd place in BCI Awards 2023**

29. Li, Y., **Anumanchipalli, G.** , Mohamed, A., Lu, Wu, J., Carney, L., Chen, P., Chang, E. F.,
"Dissecting neural computations of the human auditory pathway using deep neural networks for speech"
Nature Neuroscience, 2023

28. Lian, J., Zhang, C., **Anumanchipalli, G.** , Yu, D.
"UTTS: Unsupervised TTS with Conditional Disentangled Sequential Variational Auto-encoder"
IEEE Transactions on Audio, Speech, and Language Processing, 2023

27. Wu, P., Li, T., Lu, Y., Zhang, Y., Lian, J., Black, A. W., Goldstein, L., Watanabe, S., , **Anumanchipalli, G.**
"Deep Speech Synthesis from MRI-Based Articulatory Representations",
Interspeech 2023

26. Cho, C. J., Chang. E. F, **Anumanchipalli, G.**
"Neural Latent Aligner: Cross-trial Alignment for Learning Representations of Complex, Naturalistic Neural Data",
ICML 2023

25. Lian, J., Black, A. W., Lu, Y., Goldstein, L., Watanabe, S., **Anumanchipalli, G.**
"Articulatory Representation Learning Via Joint Factor Analysis and Neural Matrix Factorization",
IEEE ICASSP 2023

24. Wu, P., Chen, L-W., Cho, C. J., Watanabe, S., Goldstein, L., Black, A. W., **Anumanchipalli, G.**
"Towards Speaker-Independent Acoustic-to-Articulatory Speech Inversion",
IEEE ICASSP 2023 **Awarded IEEE SPS Student Travel Grant**

23. Liu, Y., Wu, P., Black, A. W., **Anumanchipalli, G.**
"A Fast and Accurate Pitch Estimation Algorithm Based on the Pseudo Wigner-Ville Distribution",
IEEE ICASSP 2023

22. Cho, C. J., Wu, P., Mohamed, A., **Anumanchipalli, G.**
"Evidence of Vocal Tract Articulation in Self-Supervised Learning of Speech",
IEEE ICASSP 2023

21. Begus, G., Zhou, A., Wu, P., **Anumanchipalli, G.**
"Articulation GAN: Unsupervised Modelling of Articulatory Learning"
IEEE ICASSP 2023

20. Metzger., et al, "Generalizable spelling using a speech neuroprosthesis in a paralyzed person", *Nature Communications 2022*. **#3rd place in BCI Awards 2022**

19. Lian, J., Zhang, C., **Anumanchipalli, G. K.**, Yu, D.,
"Towards Improved Zero-shot Voice Conversion with Conditional DSVAE"
Interspeech 2022

18. Lian, J., Black, A. W, Goldstein, L., **Anumanchipalli, G.**,
"Deep Neural Convolutive Matrix Factorization for Articulatory Representation Decomposition",
Interspeech 2022

17. Wu, P., Watanabe, S., GoldStein, L., Black, A. W, **Anumanchipalli, G.**,
"Deep Speech Synthesis from Articulatory Features",
Interspeech 2022 **Awarded ISCA Student Travel Grant**

16. Moses, D. A.*, Liu, J.*, Metzger, S.*, **Anumanchipalli, G. K.** et al.,
"Neuroprosthesis for Decoding Speech in a Paralyzed Person with Anarthria",
New England Journal of Medicine, 2021. **2nd place in BCI Awards 2021**

15. Chang, E. F. & **Anumanchipalli, G. K.**,
"Toward a Speech Neuroprosthesis",
Journal of the American Medical Association, 2020.

14. Sun, P.*, **Anumanchipalli, G. K.*** & Chang, E. F.,
"Brain2Char: A Deep Architecture for Decoding Text from Brain Recordings",
Journal of Neural Engineering, 2020.

13. **Anumanchipalli, G. K.***, Chartier, J.*, Chang, E. F.,
"Speech Synthesis From Neural Decoding of Spoken Sentences",
Nature, 2019.

12. Chartier, J.*, **Anumanchipalli, G. K.***, Johnson, K. & Chang, E. F.,
"Encoding of Articulatory Kinematic Trajectories in the Human Speech Sensorimotor Cortex",
Neuron, 2018.

11. Baud, M., Kleen, J, **Anumanchipalli, G. K.**, Hamilton, L., Knowlton, R., Leng, T., Chang, E. F.,
"Unsupervised learning of spatiotemporal interictal discharges in focal epilepsy",
Journal of Neurosurgery, 2017.

10. Bouchard, K. E., Conant, D. F., **Anumanchipalli, G. K.**, Dichter, B., Chaisanguanthum, K. S., Johnson, K. A., and Chang, E. F.,
"High-Resolution, Non-Invasive Imaging of Upper Vocal Tract Articulators Compatible with Human Brain Recordings",
PloS one 11.3, March 2016.

9. Livezey, J.*, **Anumanchipalli, G. K.***, Cheung, B., Prabhat, Sommer, F. T., DeWeese, M. R., Bouchard, K. E., and Chang, E. F.,
" Classifying spoken syllables from human sensorimotor cortex with deep networks" ,
NIPS 2015 workshop on *Statistical Methods for Understanding Neural Systems*, 2015

8. **Anumanchipalli, G. K.**, Oliveira, L. C., Black, A. W,
"Data-driven Intonational Phonology",
Acoustical Society of America , 2013

7. Sitaram, S., **Anumanchipalli, G. K.**, Chiu, J., Parlikar, A. U., and Black, A., W,
"Text to Speech in New Languages without a Standardized Orthography " ,
ISCA SSW8, 2013.

6. Hovy, D., **Anumanchipalli, G. K.**, Parlikar, A., Vaughn, C., Lammert, A., Hovy, E. & Black, A. W,
"Analysis and Modeling of "Focus" in Context",
ISCA Interspeech 2013.

5. **Anumanchipalli, G. K.**, Oliveira, L. C. & Black, A. W,
"Accent Group Modeling for Improved Prosody in Statistical Parameteric Speech Synthesis",
IEEE ICASSP 2013.

4. **Anumanchipalli, G. K.**, Oliveira, L. C. & Black, A. W,
"A Style-Capturing Approach for F0 Transformation in Voice Conversion",
IEEE ICASSP 2013. **Best Student Paper Award**

3. **Anumanchipalli, G. K.**, Oliveira, L. C. & Black, A. W,
"Intent Transfer in Speech-to-Speech Machine Translation",
IEEE SLT 2012.

2. **Anumanchipalli, G. K.**, Meinedo, H., Bugalho, M., Trancoso, I., Oliveira, L. C. & Black, A. W.,
Text Dependent Pathological Voice Detection,
in Proceedings of Interspeech 2012, Portland, September 2012.

1. **Anumanchipalli, G. K.**, Oliveira, L. C. & Black, A. W,
"A Statistical Phrase/Accent Model for Intonation Modeling",
Interspeech 2011.

PATENTS

- [Pending] "Realtime transformation of voice for privacy protection", US Patent.
- [Pending] "Systems and methods for disfluent speech transcription and detection", US Patent
- [Pending] "Methods of generating speech using articulatory physiology and systems for practicing the same", US Patent.
- [Pending] "Methods and systems for translation of neural activity into embodied digital avatar animation", US Patent.

MENTORING

- **Doctoral**: (BioE) : Josh Chartier (PhD 2019), Jessie Liu (2023), Sean Metzger(2023),
(EECS): Kaylo Littlejohn, Jiachen Lian, Cheol Jun Cho, Peter Wu, Tingle Li, Robbie Netzorg, Louis Liu, Akshat Gupta, Nicholas Lee,
(AS&T) Olurundamilola (Dami) Kazeem
- **Post-doctoral**: Pengfei Sun, PhD (UCSF Neurosurgery), Yuanning Li (Weill Neurosciences), Ran Wang (Weill Neurosciences), Shailee Jain (Weill Neurosciences)

TEACHING

- EE123: Digital Signal Processing, Spring 2022-25 UC Berkeley
- EE225D: Audio Signal Processing in Humans and Machines, Fall 2021-24, UC Berkeley
- EECA183/283A: Natural Language Processing, Fall 2025, UC Berkeley
- Instructor for "Introduction to Linear Algebra", Lisbon Machine Learning Summer school, LxMLS 2012

SERVICE & PROFESSIONAL ACTIVITIES

- **Journal reviewer**: Special topics in Signal Processing [IEEE], Transactions on Audio, Speech and Language Processing [IEEE/ACM], International Journal for Speech Technology [Springer], Speech Communication [Elsevier] ; Computer, Speech and Language; NeuroImage [Elsevier]; Journal of Neural Engineering [IoP], Nature Communications
- **Program Committee/ Conference Reviewer**: Interspeech 2013–2023, ICASSP 2016–2023, LREC 2014–2020

- **Organizing Committee** : IWSLT 2012, SSW 2016, SECNS 2016
- **Session Co-chair**: BCI 2021
- **Selection Committees:** BCI Society Early Career Award 2021, NSF CISE adhoc reviewer (2021), NSF Reviewer/Panelist (CRCNS) 2025, Graduate Admissions at EECS, UC Berkeley, 2021, 2022.

CURRENT RESEARCH SUPPORT

- PI for NSF Award "Collaborative Research: RI: Medium: Flexible Deep Speech Synthesis through Gestural Modeling", (Co-PIs Shinji Watanabe, CMU and Louis Goldstein, USC) $706900
- Rose Hills Innovator 2021, "Multimodal Intelligent Interfaces for Assistive Communication" $170000
- Google Research Award "Neural architectures for streaming speech synthesis from biosignals" $60000
- Meta AI- BAIR Commons for "Grounded Self-supervised Speech Representation Learning" $148000
- Noyce Computational Transformation Fellow Award $150000
- Co-PI for NIH Award, "Primary Progressive Aphasia: Cognition, Anatomy and Progression", (Lead PI UCSF) $606,846
- Schwab Dyslexia Innovation Fund, "Automatic Speech & Language Pathology Assessment" $70000
- Society of Hellman Fellows, "Towards Perceptually Grounded Voice Modification" $60000
- JP Morgan Chase Faculty Research Award "Joint Self Supervised Learning of Speech and Text for Spoken Language Modeling" $70000
- Co-PI for IARPA ARTS Program $1341000
- Co-PI for NSF Award "CRCNS Research Proposal: Modeling Natural Language Production" $1000000
- Sony Focussed Research Award "Compositional Multi-Modal Sound Generation for Content Creation" [Incoming] $150000
- The Brain Foundation "Correlating Neural and Behavioral Function in Minimally Verbal Autistic Individuals " $180000

AWARDS & HONOURS

- Doctoral Fellowship from Foundation for Science and Technology, Portugal (2008-2013)
- "Computers that talk with people", profile in the Portuguese tech magazine **Sábado**, Jun 1, 2011.
- IEEE Spoken Language Processing **outstanding student paper** award at IEEE ICASSP 2013, Vancouver, Canada.
- "Brain activity patterns underlying fluent speech revealed", **Science Daily**, Jun 1, 2018.
- Abstract shortlisted for an exclusive *AI-bidirectional* press conference at the SFN 2018 (< 50 selected out of 13884 abstracts; declined)
- "Artificial intelligence turns brain activity into speech", **Science News**, Jan 2, 2019.
- "Scientists Create Speech from Brain Signals", covered in over **200 international news and Tech media** outlets including **New York Times**, **BBC**, **NPR**, **Reuters**, **The Guardian**, **Wall Street Journal**, **National Geographic**, **Washington Post**, **MIT Technology Review**, **Wired**, **Techcrunch**, **Scientific American** etc, Apr 25, 2019.
- "Scientists translate brain signals into speech sounds", **NIH** press release 24th April 2019.

- Radio Interview on **BBC Radio 4** *Inside Science* and **BBC World Service** *Science in Action*, 25th April, 2019.
- Recognized as one of **top 10 Breakthroughs for 2019** by Institute of Physics' **Physics World**.
- Listed among **Biggest Medical Breakthroughs of 2019**, BBC News.
- Ranked **37** among 1.3 million research outputs ($< 0.007\%$) tracked by Altmetric for the year 2019.
- Plenary speaker at the 64th Annual Meeting of the German Society for Clinical Neurophysiology and Functional Imaging, Baden-Baden, 2020.
- "Tapping Into the Brain to Help a Paralyzed Man Speak", **New York Times**, also covered in >100 national and international news outlets, July 16th 2021.
- Recognized as Rose Hills Innovator 2021.
- Expert contributor to Gizmodo article "Will It Be Possible to Upload Information to My Brain?", Sep 20th, 2021
- Awarded the BCI Award 2021 (rank 2) for work on decoding communication signals directly from the brain of a paralyzed individual.
- Selected as a Google Research Scholar, 2022.
- Kavli Fellow, 2022 (National Academy of Sciences)
- Noyce Computational Innovation Fellow, 2022.
- Hellman Fellow, 2023
- JP Morgan Faculty Research Award, 2023
- Received the Robert E. and Berverly A. Brooks Professorship in EECS, UC Berkeley, 2024
- Sony Faculty Focussed Research Award, 2025
- "Brain-to-voice neuroprosthesis restores naturalistic Speech", covered in over 230 news outlets including the **Forbes, BBC, Reuters, AP, Time, AFP, ABC, STAT, Fox, Euronews, NIH Research Matters etc** 3/31/2025
- The BRAIN Foundation Research Award, 2025

REFERENCES

Available on request.