Berthy T. Feng

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Education

California Institute of Technology **Pasadena, CA**
- PhD candidate in Computing & Mathematical Sciences

Princeton University **Princeton, NJ, Class of 2019**
- BSE in Computer Science, *Summa Cum Laude*
- Certificate in Statistics & Machine Learning

Publications

Visual Vibration Tomography:
Estimating Interior Material Properties from Monocular Video (PDF) **arXiv 2021**
Berthy Feng, Alexander C. Ogren, Chiara Daraio, Katherine L. Bouman
- Formulate a physics-informed approach for recovering 3D, spatially-varying material properties of an object from monocular video.
- Demonstrate our approach on simulated and real videos of drum heads and cubes.

Towards Unique and Informative Captioning of Images (PDF) **ECCV 2020**
Zeyu Wang, **Berthy Feng**, Karthik Narasimhan, Olga Russakovsky
- Propose SPICE-U, an image-captioning metric that rewards diverse and descriptive captions and is better correlated with human judgment.
- Demonstrate a technique to improve any captioning model by using mutual information as a re-ranking objective.

Bandwidth Expansion Using Perceptually-Motivated Loss (PDF) **ICASSP 2019**
Berthy Feng, Zeyu Jin, Jiaqi Su, Adam Finkelstein
- Propose a deep-learning model for extreme speech bandwidth expansion (8 kHz to 44.1 kHz), using a variant of FFTNet trained with perceptual loss.
- Show that our perceptual objective leads to better human judgment scores for perceptual quality.

Work Experience

Google, Software Engineering Intern **Mountain View, CA, Summer 2019**
Play Search ML
- Integrated BERT model in Play Apps Search pipeline and evaluated the model as a ranking signal.

Google, Software Engineering Intern **Los Angeles, CA, Summer 2018**
Photos Machine Intelligence
- Developed back-end infrastructure and machine learning models on Machine Intelligence team of Google Photos.
- Expanded data pipeline to add new source of training data for ML models related to people clustering.

Teaching Experience

Volunteer Tutor	Caltech Y	2019
Lab TA	Princeton CSML, **SML 201: Intro to Data Science**	2019
Teaching Assistant	Princeton CS, **IW06: Deep Learning for Audio Synthesis**	2018
Lab TA & Grader	Princeton CS, **Introductory CS Courses**	2018
Tutor	Princeton McGraw Center for Teaching & Learning, **ECO 100/101**	2017 – 2018

Technical Skills

Programming Languages:	Python, MATLAB, Java, C++, C
Deep Learning Frameworks:	TensorFlow, PyTorch, Caffe

Awards & Honors

NSF Graduate Research Fellowship	2020
Kortschak Scholars Graduate Fellowship	2019