



YASHASWINI RAJENDRA BHAT

PHD CANDIDATE

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EDUCATION

- PENNSYLVANIA STATE UNIVERSITY**
(2020-present)
PhD, Nutritional Sciences
- UNIVERSITY OF PENNSYLVANIA**
(2018 - 2020)
Master of Biotechnology
- RV COLLEGE OF ENGINEERING, INDIA**
(2014-2018)
Bachelor of Engineering
(Biotechnology)

CERTIFICATIONS

- Data Science and Machine Learning Bootcamp (Udemy Inc.)
- Python for Computer Vision with OpenCV and Deep Learning (Udemy Inc.)

PEDIATRIC BEHAVIORAL RESEARCH

- Study design and implementation in children: eating behavior paradigms, cognitive tasks
- Food preparation and food intake
- Participant interaction

PROFILE SUMMARY

Fourth year PhD candidate specializing in predictive analysis for childhood obesity and eating behavior. Experienced in using machine learning, computer vision, and data science to improve health outcomes. Aiming to work in the food and pharma industry and public policy sector with a focus on behavioral and nutritional data analysis.

RESEARCH EXPERIENCE

Metabolic Kitchen and Children's Eating Behavior Lab (Oct 2022 - present)

PhD Candidate; Pennsylvania State University, Keller Lab

- Statistical analyses: Assessed Eating in the Absence of Hunger stability using Intraclass Correlation Coefficients and predicted gain in adiposity using linear regression in 7-9 year old children.
- Machine Learning: Developed a tutorial dataset using XGBoost to predict BMI percentile change based on eating behaviors in children.
- Computer Vision and Deep Learning: Created deep learning models (>300 videos) using R-CNN for customized face detection (F1 score = 0.85) and bite detection/classification (LSTM, SVM, AlexNet). Developed an open-source automatic bite detection and count model for pediatric obesity research.
- Laboratory Visits: Led over 50 lab visits with children (7-9 year olds) for eating behavior studies, including fMRI, behavioral, and cognitive tasks.

Preclinical neuroscience and obesity (Aug 2020-Oct 2022)

PhD Student; Pennsylvania State University, Skibicka Lab

- Stereotaxic Surgery: Performed brain surgery and cannula implantation in over 200 rats, including post-surgery monitoring.
- fMRI in Awake Rats: Conducted fMRI with ~80 awake rats, using intraperitoneal catheters for neuropeptide response (ghrelin, amylin, GLP-1) assessment.
- Behavioral Paradigms: Operant conditioning for reward/motivation; Anxiety assessment using mazes and acoustic startle response; Biodaq system for episodic intake measurements.
- Molecular Techniques: Brain slicing, RT-PCR for mRNA expression.

Institute for Diabetes, Obesity, and Metabolism (2018-2020)

Graduate Research Asst (Masters'); University of Pennsylvania, Baur Lab

- Animal Testing: Treadmill endurance tests, exercise wheel assessments, metabolic chamber studies.
- Laboratory Techniques: Oral gavage, Western blotting, ELISA, DNA extraction.
- Organ Culture: Intestinal organoid culture.
- Animal Handling: Mouse handling and dissection, blood and stool collection, fecal transplant procedures.

TEACHING EXPERIENCE

- Nutrition Education and Behavior Change Theory: Lectured, tutored, and graded 50-60 undergraduate students in Nutrition (NUTR360, Penn State)
- Nutritional Aspects of Disease: Lectured, tutored, exam revision, graded 40-50 undergraduates (NUTR 452, Penn State)
- Conducted and hosted scientific journal club for 10-15 researchers in pediatric eating behavior and statistical methods (2024)

PROGRAMMING LANGUAGES & SOFTWARE

- Python
- R, R Studio
- MATLAB
- SPSS
- GraphPad Prism

MACHINE LEARNING & DEEP LEARNING FRAMEWORKS

- Data Analysis: Matplotlib, Seaborn, Pandas, NumPy, SciPy, Plotly, GGPlot2
- Machine Learning & Deep Learning Frameworks: Scikit-learn, PyTorch, Keras, TensorFlow
- Computer Vision
- Statistical analysis

PRECLINICAL METABOLISM & NEUROSCIENCE

- Animal Models: fMRI in rats, stereotaxic brain surgery, (cannula implant)
- Behavioral Analysis: Skinner boxes, anxiety mazes, food intake
- Biochemical Techniques: Western blotting, cell/organoid culture

MEMBERSHIPS

- Society of Study of Ingestive Behavior (SSIB)
- Obesity Society
- INFORMS

PUBLICATIONS

1. Chellappa K, McReynolds MR, Lu W, Zeng X, Makarov M, Hayat F, Mukherjee S, [Bhat YR](#), Lingala SR, Shima RT, et al. NAD precursors cycle between host tissues and the gut microbiome. *Cell Metabolism* 2022;34:1947-1959.e5.
2. McReynolds MR, Chellappa K, Chiles E, Jankowski C, Shen Y, Chen L, Descamps HC, Mukherjee S, [Bhat YR](#), Lingala SR, et al. NAD+ flux is maintained in aged mice despite lower tissue concentrations. *Cell Systems* 2021;12:1160-1172.e4.
3. Asker M, Krieger J, Liles A, Tinsley IC, Borner T, Maric I, Doebley S, Furst CD, Borchers S, Longo F, [Bhat YR](#), et al. Peripherally restricted oxytocin is sufficient to reduce food intake and motivation, while CNS entry is required for locomotor and taste avoidance effects. *Diabetes Obesity Metabolism* 2023;25:856-77
4. Maric I, López-Ferreras L, [Bhat Y](#), et al. From the stomach to locus coeruleus: new neural substrate for ghrelin's effects on ingestive, motivated and anxiety-like behaviors. *Front Pharmacol.* 2023;14:1286805. Published 2023 Nov 13. doi:10.3389/fphar.2023.1286805
5. [Bhat YR](#), Rolls BJ, Wilson SJ, Rose E, Geier CF, Fuchs B, Garavan H, Keller KL. Preliminary results show that Eating in the Absence of Hunger is a stable predictor of adiposity gains in middle childhood [submitted to *Journal of Nutrition*, June 2024].
6. [Bhat YR](#), Brick TR, Hillary F, Wilson SJ, Masterson T, Keller KL. Best practices for the application of Machine Learning in Childhood Obesity [manuscript in preparation].

ABSTRACTS

1. [Bhat YR](#), Keller KL. Eating in the Absence of Hunger (EAH) remains stable in middle childhood (7-9-year-olds); video presentation in the Graduate Exhibition, Penn State, State College, 2023.
2. [Bhat YR](#), Rolls BJ, Keller KL. Eating in the Absence of Hunger (EAH) remains stable and predicts gains in adiposity in middle childhood; presentation talk in the Society for the Study of Ingestive Behavior (SSIB), Portland, OR, 2023.
3. [Bhat YR](#), Keller KL. Incorporating eating behaviors into machine learning algorithms to predict pediatric obesity; poster and Early Career Lightning Talk, Obesity Week, The Obesity Society, Dallas, TX, 2023.
4. [Bhat YR](#), Brick TR, Pearce AL, Keller KL. Bite by Byte: An open-source automatic bite detection system from mealtime videos in children, submitted and accepted for presentation talk at INFORMS Annual Meeting, Seattle, WA, 2024.

AWARDS & RECOGNITION

1. Fund for Excellence in Graduate Recruitment, College of Human Health & Devpt, Penn State, 2020-21; \$5000; incentives to use their funds strategically to enhance offers to highly qualified students.
2. Robert Graham Endowed Grad Fellowship, College of Human Health & Devpt, Penn State, 2020-21; \$1000x2 semesters; selected for most competitive incoming students.
3. Ruth L. Pike Fellow, Dept of Nutritional Sciences, Penn State, 2021-22 and 2022-23; \$1000 each time; for academic excellence
4. Third prize in the Graduate Exhibition, Penn State 2023 for video presentation : Eating in the Absence of Hunger (EAH) remains stable in middle childhood (7-9-year-olds), Yashaswini R Bhat, Kathleen L Keller; \$100
5. Finalist for Early Career Lightning Talk (13 selected out of ~600 poster abstract submissions), Obesity Week, The Obesity Society, 2023, Dallas, TX: Incorporating eating behaviors into machine learning algorithms to predict pediatric obesity, Yashaswini R Bhat, Kathleen L Keller
6. Mary Frances Picciano Endowment Travel award, 2023; \$1500
7. Barbara J Rolls Graduate Scholarship, Dept of Nutritional Sciences; 2023-2024,; \$3000; for excellence in the program