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About Me

I'm passionate about using AI to empower marginalized communities and address real-world challenges. As a PhD candidate at UBC animal welfare program and a collaborator at TrustML, I conduct interdisciplinary research bridging **AI bias**, **data science**, and **animal welfare science**. My previous research includes automated dairy cow behavior and disease monitoring. Currently, I explore biases and tranparency issues in generative AI. I believe it's crucial that we don't lose the voices of those not in power and making them invisible behind numeric machines through coded gaze. I strive to make my research fully reproducible and accessible to all.

Education

2020/9 – Present

University of British Columbia – Vancouver, BC, Canada
PhD in Applied Animal Biology X Data Science
Research Collaborator at TrustML
Supervisors: Dr. Marina von Keyserlingk, Dr. Dan Weary, Dr. Tiffany Timbers
Areas: Animal Welfare Science, Data Science, Computer Science and Statistics
Average: 91%
Relevant Coursework: Machine Learning and Data Mining, Algorithms and Data Structures, Linear Algebra

2017/9 – 2020/5

University of Wisconsin - Madison – Madison, WI, USA
Bachelor of Science in Animal Science
Certificate in Computer Science
Supervisors: Dr. Guilherme Rosa, Dr. Jennifer Van Os
GPA: 3.97/4.0
Honors: Dean's List (2017-2020), Distinctive Scholastic Achievement
Relevant Coursework: Matrix Methods in Machine Learning, Programming in Java, Human Computer Interactions, Discrete Mathematics, Introduction to Computer Engineering, Statistics and Computation in R

Publications

2025 **The erasure of intensive livestock farming in text-to-image generative AI**
Sheng, K., Tuyttens, F.A.M., von Keyserlingk, M.A.G.
arXiv preprint:2502.19771. https://doi.org/10.48550/arXiv.2502.19771

2025 **Redefining Lameness Assessment: Constructing Lameness Hierarchy using Crowd-Sourced Data**
Sheng, K., Foris, B., von Keyserlingk, M.A.G., Timbers, T.A., Cabrera, V., Weary, D.M.
Computers and Electronics in Agriculture. https://doi.org/10.1016/j.compag.2025.110206

2024 **Redefining dominance calculation: Increased competition flattens the dominance hierarchy in dairy cows**
Sheng, K., Foris, B., Krahn, J., Weary, D.M., von Keyserlingk, M.A.G.
Journal of Dairy Science, 107(9): 7286-7298. https://doi.org/10.3168/jds.2023-24587

2023 **Crowd sourcing remote comparative lameness assessments for dairy cattle**
Sheng, K., Foris, B., von Keyserlingk, M.A.G., Gardenier, J., Clark, C., Weary, D.M.
Journal of Dairy Science, 106(8): 5715-5722. https://doi.org/10.3168/jds.2022-22737

2025 **AI for One Welfare: the role of animal welfare scientists in developing valid and ethical AI-based welfare assessment tools**
Foris, B., Sheng, K., Dürnberger, C., Oczak, M., Rault, J.L.
Frontiers in Veterinary Science, 12. https://doi.org/10.3389/fvets.2025.1645901

2024 **Automated, longitudinal measures of drinking behavior provide insights into the social hierarchy in dairy cows**
Foris, B., Vandresen, B., Sheng, K., Krahn, J., Weary, D.M., von Keyserlingk, M.A.G.
JDS Communications, 5(5): 411-415. https://doi.org/10.3168/jdsc.2023-0487

2024 **Effects of group size on agonistic interactions in dairy cows: a descriptive study**
Krahn, J., Foris, B., Sheng, K., Weary, D.M., von Keyserlingk, M.A.G.
Animal, 18(3): 101083. https://doi.org/10.1016/j.animal.2024.101083

Conference Publications

2025 **The erasure of intensive livestock farming in text-to-image generative AI** (Oral Presentation)
Sheng, K., Tuyttens, F.A.M., von Keyserlingk, M.A.G.
ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT), Athens, Greece.

2024 **Redefining lameness assessment using crowd-sourced data** (Oral Presentation)
Sheng, K., Foris, B., von Keyserlingk, M.A.G., Timbers, T.A., Cabrera, V., Weary, D.M.
The 75th European Federation for Animal Science (EAAP) Annual Meeting, Florence, Italy.

2024 **Cow welfare assessment using ChatGPT Vision** (Poster Presentation)
Sheng, K., Heydarirad, M., Foris, B.
The 9th International Conference on the Welfare Assessment of Animals at Farm Level (WAFL), Florence, Italy.

2024 **Automatically monitoring dyadic relationships in dairy cows** (Oral Presentation)
Foris, B., **Sheng, K.**, Weary, D.M., von Keyserlingk, M.A.G.
The 75th European Federation for Animal Science (EAAP) Annual Meeting, Florence, Italy.

2023 **Remote Comparative Lameness Assessment in Dairy Cattle: A Crowdsourcing Approach** (Oral Presentation)
Sheng, K., Foris, B., von Keyserlingk, M.A.G., Gardenier, J., Clark, C., Weary, D.M.
The American Dairy Science Association (ADSA) Annual Meeting, Montreal, QC, Canada.

2023 **Effect of group composition on agonistic interactions received by subordinate cows: A pilot study** (Poster Presentation)
Krahn, J., Foris, B., **Sheng, K.**, Weary, D.M., von Keyserlingk, M.A.G.
The American Dairy Science Association (ADSA) Annual Meeting, Montreal, QC, Canada.

2022 **The Effects of Competition at the Feeder on Dominance in Dairy Cows** (Oral Presentation)
Sheng, K., Foris, B., Krahn, J., Weary, D.M., von Keyserlingk, M.A.G.
The 73th European Federation for Animal Science (EAAP) Annual Meeting, Porto, Portugal.

2022   **Effects of group size on the social experience of dairy cows** (Poster Presentation)
Krahn, J., Foris, B., **Sheng, K.**, Weary, D.M., von Keyserlingk, M.A.G.
The 55th Congress of the International Society of Applied Ethology (ISAE), Ohrid, North Macedonia.

2019   **Behavioral response of dairy cows after subcutaneous insertion of real-time temperature detecting biosensor: A pilot study** (Poster Presentation)
Sheng, K., Reuscher, K., Chung, H., Choi, C., Kim, Y., Brounts, S., Van Os, J.
The American Dairy Science Association (ADSA) Annual Meeting, Cincinnati, OH, USA.

Open-source Projects

2025/2 – 2025/6   **R package: moo4feed**
An R package to extract individual-level traits from feeding and drinking data collected by precision livestock farming systems, supporting reproducible and scalable animal welfare research.

2024/12 – present   **AI Agent System Prompts & Rules**
Production-tested system prompts and rules for AI agents across domains, enabling reliable collaboration and efficient task completion using Cursor and Claude LLMs.

2024/10 – 2025/2   **AI's representation bias about livestock farming**
Investigated representation bias in text-to-image generative AI, revealing the automated prompt revision process could erase the reality of controversial topics, and reinforces common misconceptions. The analysis is fully reproducible via a customized Docker image and GNU Make workflow.

2023/1 – 2024/3   **Competition Dominance Analysis**
Used a Bayesian statistical framework to show that high feed competition flattens dominance hierarchies in dairy cattle. Developed an algorithm to automatically detect displacement behaviors, and monitor dominance hierarchy over time.

2023/7 – 2025/2   **Lameness Hierarchy**
Developed a novel lameness assessment tool using crowd-sourcing (Amazon MTurk) and a Bayesian Elo-rating system, similar to the LLM chatbot arena. Untrained workers achieved expert-level accuracy in pairwise comparisons of cow videos, providing a scalable and cost-effective method for early lameness detection.

2024/2 – 2024/7	**Welfare Assessment using GPT-4o** :octocat:
	Evaluated cattle cleanliness through automated image analysis using GPT-4o and the Segment Anything Model (SAM). Explored various prompting and image processing techniques, finding that image segmentation improved model performance the most.
2022/9 – 2022/12	**Lameness Prediction through Machine Learning** :octocat:
	Applied various machine learning models to predict lameness in dairy cows from behavioral data. The study demonstrated that data preprocessing techniques, such as balanced sampling, significantly improved predictive accuracy for early detection. *Note: This GitHub repository is private as the associated paper has not been published yet. Please email me to request private access.*

Research Funding

Total research funding secured: $74,975 CAD

2024 – 2025	Mary and David Macaree Fellowship ($3,195 CAD)
	Research on crowd-sourced pairwise lameness assessment for dairy cattle.
2024 – 2025	Pei-Huang Tung and Tan-Wen Tung Graduate Fellowship ($3,550 CAD)
	Research on developing novel lameness assessment methods using Elo-rating.
2024 – 2025	Hugo E Meilicke Memorial Fellowship ($12,450 CAD)
	Research on automated methods for cattle lameness detection.
2023 – 2024	John and Mary Young Scholarship ($1,825 CAD)
	Development of automated system for behavioral monitoring.
2023 – 2024	Elizabeth R Howland Fellowship Award ($1,761 CAD)
	Research on cattle behavioral plasticity and personality.
2022 – 2023	Wilson Henderson Fellowship ($12,250 CAD)
	Research on comparative lameness assessment methods.
2022 – 2023	Elizabeth R Howland Fellowship Award ($2,872 CAD)
2021 – 2022	James A. Shelford Memorial Scholarship ($1,380 CAD)
2021 – 2022	Pei-Huang Tung and Tan-Wen Tung Graduate Fellowship ($16,000 CAD)
2020 – 2021	Elizabeth R Howland Fellowship ($16,000 CAD)
2020 – 2021	James A. Shelford Memorial Scholarship ($971 CAD)
2019 – 2020	Farrington Undergraduate Research Award ($2,000 USD)
	Research on behavioral responses of dairy cows to temperature monitoring devices

Honors, Awards and Scholarships

Total scholarship awarded: $48,184 CAD

2025	Elizabeth R Howland Fellowship ($2,428 CAD)
2025	ACM Conference on Fairness, Accountability, and Transparency (FAccT) Travel Grant ($1308.2 USD)
2025	Outstanding UBC Master of Data Science (MDS) TA Award
2025	UBC Land and Food Systems Graduate Student Conference – **Second Place** in Oral Presentation ($125 CAD)
2024	pyOpenSci Fall Festival Scholarship ($350 CAD)
2024	Ursula Knight Abbott Travel Scholarship ($1,750 CAD)
2022 – 2025	President's Academic Excellence Initiative PhD Award (Total: $4,985 CAD) *Awarded for 4 consecutive terms ($950 – 1080 CAD per winter term, $350 – 500 CAD per summer term)*
2022	Ursula Knight Abbott Travel Scholarship ($1,500 CAD)
2022	Graduate Student Travel Award ($500 CAD)
2022	EAAP Early Career Researcher Award – **First Place** in Oral Presentation
2021	Dairy Farmers of Canada My Dairy Research Student Competition – **First Place** ($1,500 CAD) *Won for innovative research and animated video presentation on cattle lameness detection: Cyborg Lameness Assessors*
2020 – 2025	International Tuition Award (Total: $18,128 CAD) *Awarded for 10 consecutive terms ($2,133 CAD per winter term, $1,066 CAD per summer term)*
2022 – 2025	Animal Welfare Program Travel Award (Total: $4,000 CAD) *Awarded for 4 consecutive years ($1,000 CAD per accepted conference)*
2020	College of Agricultural and Life Sciences Senior Award ($500 USD) *Recognition as one of five outstanding senior students*
2020	Farm Credit/MANRRS VIP Scholarship ($2,000 USD) *Recognition for outstanding minorities in agriculture*
2019	Dorothy Strong Scholarship ($1,500 USD)
2019	ADSA Undergrad Research Poster Competition – **Third Place** ($50 USD)
2019	Agriculture Future of America Leaders Scholarship ($1,000 USD)
2018	Ruth and Carl Miller Academic Merit Award ($1,125 USD)
2018	Agriculture Future of America Travel Grant ($1,000 USD)
2017 – 2020	University of Wisconsin-Madison Dean's List *Awarded consecutively for three years*
2015	ShanghaiTech Small Satellite Design Competition – **Third Place** (1,000 CNY)
2015	Extraordinary Student Scholarship (6,250 CNY)
2015	National English Speech Competition – **Third Place**

Teaching Experience

Fall 2025   **Lecturer, DSCI 522: Reproducible and Trustworthy Data Science Workflows**
University of British Columbia Master of Data Science Program (UBC MDS)
Teaching reproducible and trustworthy data science workflows, focusing on reproducibility, project management, version control, Docker containers, and automated workflows.

Fall 2025   **Lecturer, DSCI 571: Supervised Machine Learning**
UBC MDS
Teaching supervised machine learning, including topics like multi-class classification, logistic regression, decision trees, random forests, and SVM.

Summer 2025   **Instructor, Data Science for Kids Summer Camp**
Vancouver Independent School of Science and Technology (VISST)
Designed and taught an introduction to data science workshop for kids, making AI (Anthropic Claude) and data science accessible and fun for young learners. The topics include Claude AI assissted programming, introduction to programming (if-else conditions, for loops), statistcal inference (sampling, bootstrapping), data visualization and analysis, K-nearest neighbor, and AI ethics.

Summer 2025   **Mentor, Data Science for Girls Summer Camp**
University of British Columbia (UBC)
Mentored participants in a summer camp focused on introducing girls to data science, fostering diversity and inclusion in STEM fields through hands-on learning experiences.

Spring 2025   **Tutorial Instructor, AI Tools Playground: Responsible Use of Generative AI**
UBC
Designed and taught a comprehensive AI literacy workshop for graduate students, covering UBC-approved AI platforms (ChatGPT, Microsoft Copilot), advanced coding assistance, LLM evaluation and selection, text-to-image generation, and strategic prompt engineering. Workshop emphasized "AI as copilot, not autopilot" philosophy, and responsible AI usage including privacy concerns, institutional policies, bias detection, and ethical considerations.

Spring 2025   **Guest Lecturer, Career Exploration Course**
VISST
Taught a lecture about AI bias and animal welfare focusing on the topic of "How AI Sees Farm Animals: Whose Stories Are Lost?".

Spring 2025	**Tutorial Instructor, Tutorial on Linux Command Using Amazon Web Services (AWS) Elastic Compute Cloud (EC2)**
	UBC MDS
	Designed and taught a hands-on AWS EC2 tutorial where participants learned to set up EC2 instances, use SSH with key-based authentication, and master Linux commands through a creative rescue mission. Students helped free Ollie the Otter from a digital dungeon using Linux commands for directory navigation, permission changes, and file management in a cloud environment. This approach made technical concepts stick as participants solved problems with purpose, turning dry command-line instructions into a memorable adventure with Ollie in AWS infrastructure. Tutorial enrollment: 40 students.
Spring 2025	**Teaching Assistant, DSCI 525: Web and Cloud Computing**
	UBC MDS
	Supported student learning in cloud computing, parallel computing, and APIs. Assisted students in exploring web services for scalable computing, web publication, web hosting, and data collection. Course enrollment: 116 students.
Spring 2025	**Teaching Assistant, DSCI 553: Statistical Inference and Computation II**
	UBC MDS
	Guided students in learning prior-to-posterior Bayesian paradigm, focusing on multiple hypothesis testing, false discovery rate, and two-group comparisons. Course enrollment: 116 students.
Spring 2025	**Teaching Assistant, DSCI 524: Collaborative Software Development**
	UBC MDS
	Instructed on collaborative software development techniques, including software life cycle, unit testing, continuous integration, python packaging and R packaging for distribution. Course enrollment: 116 students.
Fall 2024	**Teaching Assistant, DSCI 522: Data Science Workflows**
	UBC MDS
	Guided students through building reproducible and trustworthy data science workflow, focusing on reproducibility, project management, version control, the use of Docker container, and automated workflows. Course enrollment: 116 students.
Fall 2024	**Teaching Assistant, DSCI 552: Statistical Inference and Computation I**
	UBC MDS
	Supported students in understanding foundations of frequentist statistical inference, simulation-based approaches and computations. Course enrollment: 116 students.

Fall 2024	**Guest Lecturer, CCV868: Special Topics in Veterinary Clinics and Surgery**
	Universidade Federal de Minas Gerais
	Delivered lecture on "Lameness in Dairy Cows: Causes, Detection, and Ethical Dilemmas in an Intensive System". Lecture focused on automated lameness detection methods. Course enrollment: 16 students.
Spring 2024	**Guest Lecturer, APBI 315: Animal Welfare and Ethics of Animal Use**
	UBC
	Delivered lecture on AI's bias about livestock farming. Course enrollment: 100 students.
2023/4 − 2024/8	**Instructor, Machine Learning and AI Summer Camp**
	VISST
	Taught high school students (11-16 years old) an introduction to machine learning for two consecutive summers, covering concepts like decision trees, metrics, computer vision, natural language processing, reinforcement learning, generative AI and AI ethics. Developed engaging curriculum to make complex AI concepts accessible to young learners.
Fall 2021	**Teaching Assistant, APBI 314: Animals and Society**
	UBC
	Assistant student learning on the welfare of wildlife, livestock and lab animals. Managed weekly discussions and student assignments. Course enrollment: 96 students.

Employment

2025/9 − 2025/12	**Master of Data Science, University of British Columbia (Department of Statistics)**
	Sessional Lecturer − Vancouver, BC, Canada
	• DSCI 522: reproducible workflows, project management, version control, Docker, GNU Make automation.
	• DSCI 571: supervised ML (multiclass classification, logistic regression, decision trees, random forests, SVM).

2024/10 – 2025/4	**Master of Data Science, University of British Columbia (Department of Statistics)**
	Teaching Assistant – Vancouver, BC, Canada
	• Supported student learning: [1] reproducible and trustworthy workflows. [2] frequentist statistics and simulation-based methods. [3] web/cloud computing, parallel computing, APIs. [4] Bayesian statistics. [5] software lifecycle, unit testing, CICD, packaging (Python/R).
2023/4 – present	**Vancouver Independent School of Science and Technology**
	Machine Learning, AI and Data Science Instructor – Vancouver, BC, Canada
	• Taught high school students (11-16 years old) an introduction to machine learning for 3 consecutive summers, covering concepts like generative AI, AI ethics,decision trees, metrics, computer vision, natural language processing, reinforcement learning, statistcal inference, introduction to programming, and data visualization.
2018/9 – 2020/7	**Dairy Science Department, University of Wisconsin-Madison**
	Undergraduate Research Assistant – Madison, WI, United States
	• Created an R script to analyze standing and lying behavior of dairy cows using HOBO data logger. Upgraded lying and standing analysis algorithms in SAS.
	• Evaluated behavioral responses of dairy cows after subcutaneous insertion of real-time temperature detecting microchips.
	• Conducted behavioral observations and respiration rate recordings.
	• Performed rigorous data cleaning, error checking, and data loading.
	• Worked under the supervision of Principal Investigator Jennifer Van Os, Ph.D.
2019/5 – 2019/7	**StoneX Group Inc.**
	Data Analyst Intern – Financial Sector – Kansas City, MO, United States
	• Created a color gradient map in R to visualize planting delay degrees, supporting market analysis for agricultural trading.
	• Developed an Excel VBA tool to automate trade information uploads to an SQL database, improving data entry efficiency.
	• Gained experience in big data analytics, data cleaning, and financial data visualization.
2017/11 – 2018/7	**Large Animal Veterinary Hospital, University of Wisconsin-Madison**
	Barn Crew Member – Madison, WI, United States
	• Performed animal health observation, cleaned stalls, and fed animals daily.
	• Gained hand-dripping and machine milking experience with dairy cows.
	• Handled various animals including cows, horses, donkeys, camels, sheep, and pigs.

2017/10 – 2018/4	**Wisconsin National Primate Research Center**
	Colony Management Member – Madison, WI, United States
	• Administered medication treatments, including drawing blood samples and performing intramuscular and subcutaneous injections to macaques.
	• Fed infant and adult macaques, cleaned cages, checked drinkers and IDs, and performed daily animal health observations.
2017/5 – 2017/7	**Education First**
	Marketing Intern & Group Leader – Yantai, Shandong, China
	• Talked with potential customers and advertised English education products.
	• Taught team members how to identify target customers, explore customer needs, and respond to customer inquiries.

Presentations without Conference Proceedings

2025	Advances in Dairy Technology and Data-Driven Innovation
	Food Tech Forum (Invited Panel Discussion), Langley, BC, Canada
	Invited panel discussion organized by Canadian Agri-Food Automation and Intelligence Network (CAAIN).
2025	Redefining the Future of Canadian Dairy: When Cows Meet Data and AI
	UBC Dairy Education and Research Centre (Student Representative Oral Presentation), Agassiz, BC, Canada
	Celebrating Farm Credit Canada's $1M donation to UBC DERC's integrated data hub.
2025	The erasure of intensive livestock farming in text-to-image generative AI
	Vancouver Vision & Learning Workshop @ International Conference on Machine Learning (ICML), Vancouver, BC, Canada
2025	The erasure of intensive livestock farming in text-to-image generative AI
	CAIDA/TrustML 2025 ICML Visits, Vancouver, BC, Canada
2025	The erasure of intensive livestock farming in text-to-image generative AI
	UBC LFS Graduate Student Conference, Vancouver, BC, Canada
2025	Using LLMs During your Learning Journey and Beyond
	University of British Columbia Master of Data Science Program Orientation, Vancouver, BC, Canada
2024	Technology on Dairy Farms and Animal Welfare: Framing and Potential
	International Dairy Federation (IDF) Webinar Series (Invited Presentation), Virtual

2023   Automatic Longitudinal Lameness Assessment for Dairy Cows
Western Canadian Certified Hoof Trimmers Associations Meeting (Invited Presentation), Red Deer, AB, Canada

2023   AI for Animal Welfare
Evergreen College Visit to UBC, Vancouver, BC, Canada

2023   Comparative Lameness Assessments for Dairy Cows on Amazon
UBC-Animal Welfare Program Industrial Research Chair (IRC) Meeting, Virtual

2023   Identifying Lame Cows through Crowd-Sourcing
Chinese Animal Welfare Conference (Invited Presentation), Chongqing, Changsha, China

2023   Lameness Hierarchy of Dairy Cows
UBC-Animal Welfare Program Industrial Research Chair (IRC) Meeting, Vancouver, BC, Canada

2023   Lameness Assessment of Dairy Cows
Prime Acres Open Farm Day, Abbotsford, BC, Canada

2022   The Impact of Resource Competition on the Dominance Hierarchy of Dairy Cows
International Farm Animal Welfare Fellowship (IFAWF) Webinar (Invited Presentation), Virtual

2021   Cyborg Lameness Assessors for Dairy Cows
UBC LFS Graduate Student Conference, Vancouver, BC, Canada

2021   Cyborg Lameness Assessors: Is This the Future for Dairy Cattle Lameness Assessments?
Dairy Farmers of Canada My Dairy Research Student Competition, Virtual

2020   Improve Dairy Cattle Welfare with the Use of Technology
Evergreen College Visit to UBC, Vancouver, BC, Canada

2020   Lameness Detection with the Use of Amazon MTurk
UBC-Animal Welfare Program Industrial Research Chair (IRC) Meeting, Vancouver, BC, Canada

2019   Behavioral Responses of Dairy Cows After Subcutaneous Insertion of Real-Time Temperature Detecting Microchips
University of Wisconsin-Madison Animal Science Department Meetings & Undergraduate Research Symposium, Madison, WI, United States

2019	Opportunities in the US Agriculture Industry
	University of Wisconsin-Madison CSSA Meeting (Invited Presentation), Madison, WI, United States

Podcast Interviews

2024/12	Exploring Agritech, Data Standards, and Improved Animal Welfare
	The Livestack Podcast: Episode 21, Interviewed by Daniel Foy, the CEO of AgriGate
	Discussed potential benefits and risks of using AI and Precision Livestock Farming (PLF) to automate animal welfare assessment. This podcast was the top 5 most popular ones on the platform in 2024, reached key stakeholders in agricultural technology and animal science.
2024/6	Evaluating Common Practices in Pig and Dairy Farming from an Animal Welfare Perspective
	The Road of Tomorrow Podcast: vol.67, Interviewed by Jing Feng
	Explored controversial practices in modern farming, and addressed ethical and practical aspects of animal husbandry. Podcast reached over 10,600 listeners in 4 months.

Mentorship

2025/10 – present	**Mehmet Imga (Master's Student in Data Science, University of British Columbia)**
	Supervised frontend-backend integration for the pairwise lameness assessment application
2025/10 – present	**Rebecca Sokol-Snyder (Master's Student in Data Science, University of British Columbia)**
	Supervised research on evaluating political neutrality of output from Large Language Models
2025/10 – present	**Tanav Singh Bajaj (Master's Student in Data Science, University of British Columbia)**
	Supervised optimization of pairwise comparison algorithm to make smart selection of which cow to compare with whom for maximum information gain

2025/9 – present	**Xiaowen Su (Master's Student in Applied Animal Biology, University of British Columbia)** Supervised the development of a computer vision pipeline to automatically sort videos based on quality
2025/9 – present	**Liangyan Zhou (Undergraduate Student in Applied Animal Biology, University of British Columbia)** Supervised the development of frontend design for a website enabling pairwise lameness comparison
2025/4 – 2025/6	**Colombe Tolokin (Master's Student in Data Science, University of British Columbia)** Supervised the development of R package 'moo4feed', which is designed to extract individual animal traits from sensor data
2025/4 – 2025/6	**Nicole Lopez (Master's Student in Data Science, University of British Columbia)** Supervised the development of R package 'moo4feed', which is designed to extract individual animal traits from sensor data
2024/9 – 2025/1	**Victoria Portela Diniz Gaia (Master's Student in Animal Science, Universidade de São Paulo)** Co-supervised research on developing an R package for lying and standing behavior monitoring using HOBO sensors.
2024/1 – 2024/8	**Mahshid Heydarirad (Undergraduate Student in Applied Animal Biology, University of British Columbia)** Supervised Mahshid in conducting a research project on cow welfare assessment using ChatGPT Vision. Mahshid assisted in sorting, labeling, and cleaning images for welfare assessment of dairy cows. I guided her through exploratory analysis and prompt engineering using OpenAI GPT-4o model.
2022/5 – present	**Kay Yang (Undergraduate Student in Biology, University of British Columbia)** Supervised research on feeding strategies of dairy cows. Project investigated how dynamic temporal and spatial competition influences feeding behaviors across 159 lactating Holstein cows over a 10-month period. Kay is currently pursuing veterinary medicine degree at University of Saskatchewan.
2022/5 – 2023/12	**Kratika Rathi (Undergraduate Honours Student in Statistics, University of British Columbia)** Guided Kratika in the development of a statistical model to analyze the repeatability and predictability of feeding behaviors in dairy cows.

2023/5 – 2023/8	**Charlie He (Undergraduate Student in Computer Science, University of British Columbia)** Supervised a computer science project on fine-tuning YOLO-v8 model to automatically identify dairy cattle based on unique body patterns, achieving 98% accuracy on the test set. Charlie is currently pursuing a PhD at University of British Columbia.
2023/9 – 2023/12	**Andrew Tran (Undergraduate Student in Computer Science, University of British Columbia)** Supervised a computer science project on automatic video quality classification using YOLO-v8 model. Andrew is currently working as a Software Engineer at Amazon.
2022/5 – 2023/8	**Sora Jeong (Undergraduate Student in Cognitive Science, University of British Columbia)** Guided Sora is programming and running statistical analysis on pairwise lameness comparison results in R. Co-supervised her on a research project examining resource use and social dynamics in group-housed dairy cows. Research focuses on the interplay between individual traits, personality, and dominance status.
2021/1 – 2021/5	**Marriam Dia (Undergraduate Student in Applied Animal Biology, University of British Columbia)** Supervised research project validating R scripts for assessing lying and standing behaviors of dairy cows using HOBO sensors. Marriam is currently working as an International Concierge Agent.
2022/5 – 2022/7	**Jiwei Hu, Kristin Bunyan, Chaoran Wang, Allyson Stoll (Master of Data Science Students, University of British Columbia)** Collaborated with 4 students to develop a social network analysis dashboard for analyzing social bonds between dairy cows.
2021/7 – 2021/7	**Ify Anene, Steffen Pentelow, Selma Durić, Rafael Hellwig, Elanor Boyle-Stanley, Ela Bandari, Sasha Babicki (Master of Data Science Students, University of British Columbia)** Collaborated with 7 students in creating an interactive dashboard to visualize cattle behaviors in real-time.

Professional Development

2024   **Future of Natural Language Processing (NLP) Workshop in the 38th Neural Information Processing Systems (NeurIPS) conference**
Gained insights into cutting-edge generative AI models and methods to evaluate their outputs. I was invited to pitch my research insights about AI's representation bias of livestock farming at Google's GenMedia team social event.

2024   **PyOpenSci Fall Festival**
Attended a 5-day workshop focusing on creating, testing and documenting Python packages.

2024   **The 39th Annual Association for the Advancements of Artificial Intelligence (AAAI) Conference**
Participated in discussions on advancing generative AI research and applications, with a focus on AI ethics and animal welfare implications.

2023   **Conference on Computer Vision and Pattern Recognition (CVPR)**
Attended the main CVPR conference, participated in the CV4Animals workshop, and engaged in discussions on the application of computer vision in livestock farming.

2022   **Product A/B Testing Certificate (Udemy)**
Completed an online course on A/B testing and multi-armed bandit strategies for technological product development.

2021   **CIRTL Associate Certificate (Centre for the Integration of Research, Teaching, and Learning)**
Earned a certificate by attending an instructional skills workshop aimed at enhancing teaching practices.

2021   **International Farm Animal Welfare Fellow Certificate**
Recognized as a fellow for participating in the International Farm Animal Welfare Fellowship.

2019   **Accounting Fundamentals Certificate (Corporate Finance Institute)**
Obtained a certificate on the basics of accounting, financial principles, and the future market.

2019   **Agriculture Future of America Technology Institute**
Learned about precision agriculture and precision livestock farming, networked with industry professionals, and gained insights into the field.

2018   **Agriculture Future of America Leaders Conference**
Networked with agriculture industry professionals and students, attended career workshops, and developed leadership and communication skills.

Academic and Professional Service

2025 – present **Research Collaborator, UBC TrustML Research Cluster**
Collaborate on research projects focusing on building reliable, secure, explainable, and ethical AI systems.

2024/11 – **Reviewer, Methods in Ecology and Evolution**
2025/5 Reviewed one manuscript for this journal, focusing on innovative python script for dominance hierarchy calculation.

2024/1 **External Reviewer, Dutch Research Council (NWO)**
Assessed one research funding application for the Dutch Research Council, with a focus on projects related to computer science and neuroscience.

Leadership, Community and Volunteer Activities

2025/6 **Volunteer, ACM Conference on Fairness, Accountability, and Transparency (FAccT)**
Volunteer to facilitate oral presentations at the 2025 ACM FAccT conference

2025/3 **Facilitator, AI for Animals conference**
Facilitated one meetup and one workshop about Precision Livestock Farming during the 2025 AI for Animals conference.

2022/8 **Programming Instructor, Vancouver Independent School for Science and Technology**
Taught students aged 10-13 how to program video games using PuzzleScript, provided troubleshooting support, and guided independent projects.

2021/12 – **Organizer and Coordinator, UBC Animal Welfare Program 25th Anniversary**
2023/5 **Webinar Series Celebration**
Planned a webinar series to celebrate UBC Animal Welfare Program's 25th Anniversary. Invited alumni to give presentations showcasing their impact on the animal welfare field.

2020/9 – **Facilitator, Monthly Webinars at UBC Animal Welfare Program**
2021/12 Hosted monthly webinar series featuring international speakers, with around 30 participants per session.

2019/3 – 2020/3	**Student Leader and Ambassador, Agriculture Future of America** Built a bridge for undergraduate students to connect with industry professionals through strategic networking, leadership development, and career-building initiatives. Represented Agriculture Future of America at various conferences (e.g., Alltech One 19) to negotiate funding and network with industry professionals.
2017/12	**Organizer and Speaker Introducer, TED x UW-Madison** Organized and hosted TEDx UW-Madison with club members, introduced speakers, and worked as an event photographer.
2013/8	**Organizer, Chinese and American Charity Ball** Organized a charity ball for international students and locals in Yantai, Shandong, China. Donated all proceeds to a primary school in Laiyang, Shandong, and taught English to students during the visit.
2012/12 – 2013/6	**Organizer, Second-Hand Book Charity Sales for Stray Dogs** Collected second-hand books and hosted charity fairs in Yantai, Shandong, China, donating all proceeds to a local animal shelter. Advocated for stray animal protection through media outreach and partnerships with Animals Asia Foundation.

Professional Memberships

2025/5 – present	**Graduate Student Member, Association for Computing Machinery (ACM)**
2022/8 – 2025/12	**Graduate Student Member, European Federation of Animal Science (EAAP)** *Attended annual conferences, presented research on dairy cow behavior and welfare.*
2024/2 – 2025/2	**Graduate Student Member, Association for the Advancement of Artificial Intelligence (AAAI)** *Explored cutting-edge AI research, participated in conference tutorials, and engaged in discussions about bias in AI, particularly concerning animals and livestock farming.*
2019/1 – 2023/12	**Graduate Student Member, American Dairy Science Association (ADSA)** *Presented research, attended annual meetings, and participated in student research competitions.*

Technical Skills

Programming Languages

Advanced: Python (e.g., pandas, numpy, scikit-learn, matplotlib), R (e.g., tidyverse, ggplot2), bash shell, SAS

Intermediate: HTML, Excel VBA

Coursework Experience: C++, Java, Julia

Data Science, AI & Visualization Tools

Vibe Programming: Cursor

Version Control: Git, GitHub

Cloud & Containerization: Docker, AWS, Google Colab

Generative AI models: OpenAI API, Stability AI API

Visualization: Tableau, R Shiny, Matplotlib, Plotly

Other Software

LaTeX, Notion, 3DSMAX, GNU Make

Languages

English (Fluent and Professional), Chinese (Native)