AI VIETNAM
All-in-One Course
(TA Session)

Motivation and Suggestions: Career Shift from Math to AI

TA - Thanh Huy

Personal Information

TA - Thanh Huy

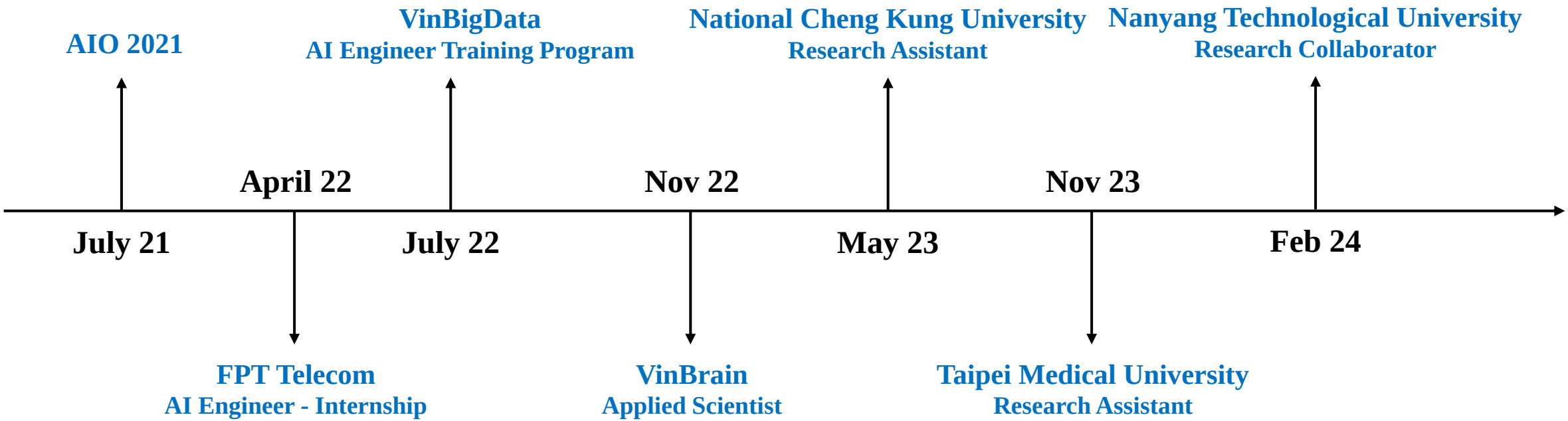
Overview

Thanh Huy NGUYEN (AIO 2021)

- AIO 2021 - Member
- BSc of Mathematics Teaching Education (HCMUE - Vietnam)
- MSc of Artificial Intelligence in Health (uB – France) (start from Fall 2024)

Current Position:

- AIO 2024 – TA
- Leader of AI in Medical Imaging (AIMI) – AI VIETNAM
- Research Collaborator in NTU – Singapore
- Research Collaborator in Saigonmec – Vietnam



AI in Medical Imaging (AIMI) – AI VIETNAM

AIMI Research Group Information:

- Foundation: April 2023
- Achievements:
  - 12 Accepted conference/journal papers.
  - 4 Submitted conference/journal papers.
  - Total: 2 Q1 journals, 1 rank A*, 4 rank A conf
- Research Networks:
  - National Cheng Kung University (TW)
  - Taipei Medical University (TW)
  - National Taiwan University (TW)
  - National Central University (TW)
  - Nanyang Technological University (SG)
  - National Skin Center (SG)
  - Saigonmec (VN)
  - Blood Transfusion and Hematology Center (VN)
  - Other Domestic Universities (VN)

AIMI Publications

- (ICCV 2023): Nguyen, Thanh-Huy, et al. "Towards Robust Natural-Looking Mammography Lesion Synthesis on Ipsilateral Dual-Views Breast Cancer Analysis." Proceedings of the IEEE/CVF International Conference on Computer Vision. 2023.
- (MICCAI 2023): Truong, T. T., Nguyen, H. T., Lam, T. B., Nguyen, D. V., & Nguyen, P. H. (2023, October). Delving into Ipsilateral Mammogram Assessment Under Multi-view Network. In International Workshop on Machine Learning in Medical Imaging (pp. 367-376). Cham: Springer Nature Switzerland.
- (IEEE SSP 2023): H. T. Nguyen, T. B. Lam, Q. T. D. Tran, M. T. Nguyen, D. T. Chung and V. Q. Dinh, "In-context Cross-Density Adaptation on Noisy Mammogram Abnormalities Detection," 2023 IEEE Statistical Signal Processing Workshop (SSP), Hanoi, Vietnam, 2023, pp. 383-387.
- (TAAI 2023): Gia-Van To, Thanh-Huy Nguyen, Manh-The Nguyen. SMOTE-MD: Synthetic Algorithm using Mahalanobis Distance for Casualty Insurance.
- (TAAI 2023): Quan Dinh Dai Tran, Toan Thai Ngoc Truong, Quoc-Vinh Luu, Anh H. Dao, Minh T. Nguyen, and Quang-Vinh Dinh. Delineating COVID-19 Pulmonary Infiltrate Manifestation Leveraging Auxiliary Tasks
- (TAAI 2023): Thinh B. Lam, Hien Q. Kha, Huy T. Nguyen, Dinh-Tan Nguyen, Quan D. Nguyen, Toan T. N. Truong, Manh D. Vu, Nguyen Quoc Khanh Le. Redesigned Dual-Task Learning Framework for Diagnosis Mammography Screening with BI-RADS and Density Classification.
- (ICISN 2024): Quoc-Vinh Luu, Khanh-Duy Le, Thanh-Huy Nguyen, Thanh-Minh Nguyen, Tien-Thinh Nguyen, and Quang-Vinh Dinh. (2024) Semi-supervised Semantic Segmentation using Redesigned Self-Training for White Blood Cells.
- (ICISN 2024): Dat T. Chung, Minh-Anh Dang, Mai-Anh Vu, Minh T. Nguyen, Thanh-Huy Nguyen, and Vinh Q. Dinh. (2024) Beyond Traditional Approaches: Multi-Task Network for Breast Ultrasound Diagnosis.
- (ISBI 2024): Thanh-Huy Nguyen, Thi Kim Ngan Ngo, Mai Anh Vu, Ting-Yuan Tu. Blurry Consistency Segmentation Framework with In-focus Spatial Stacking on 3D Breast Cancer Cell.
- (ISBI 2024): , Hien Q. Kha, Dinh T. Nguyen, Thinh B. Lam, Thanh-Huy Nguyen, Cao T. Tran, Manh D. Vu, Lan T. Ho-Pham, Liem Pham, Nguyen Quoc Khanh Le. (2024) M2Net: Two-stage Multi-label Breast Cancer Detection Networks.
- (TNU Journal): Thuy Phuong Nhu Le, Thanh-Huy Nguyen. Using convolutional neural network (CNN) for COVID-19 chest X-ray diagnosis.
- (Q1 Journal): Ba Hung Ngo, Ba Thinh Lam, Thanh-Huy Nguyen, Quang Vinh Dinh, Tae Jong Choi. Dual Dynamic Consistency Regularization for Semi-supervised Domain Adaptation.
- (Q1 Journal): Toan T. Nguyen, Huy T. Nguyen, Huy Q. Ung, Hieu T. Ung and Binh T. Nguyen. Deep-Wide Learning Assistance for Insect Pest Classification.

Red: AIO 2021 Green: AIO 2022 Blue: AIO 2023

Research Projects

AIMI Research Projects:

- 3D Microscopy Breast Cancer Cell Tracking (Affiliated with NCKU)
- Drug Response Prediction on Lung Cancer Cell Lines (Affiliated with TMU)
- MRI-based 3D Liver and Cancer Segmentation. (Affiliated with TMU)
- Mammography Abnormalities Detection (Affiliated with Saigonmec x TMU)
- Skin Lesions Classification and Segmentation (Affiliated with NTU-SG x NSC)
- Cardiac Signal Diseases Prediction (Affiliated with NTU-TW x Harvard x Yale)
- White Blood Cell Segmentation and Subtypes Recognition (Affiliated with BTH)
- Semi-supervised Biomedical Segmentation (AIMI)

Study Path and Suggestions

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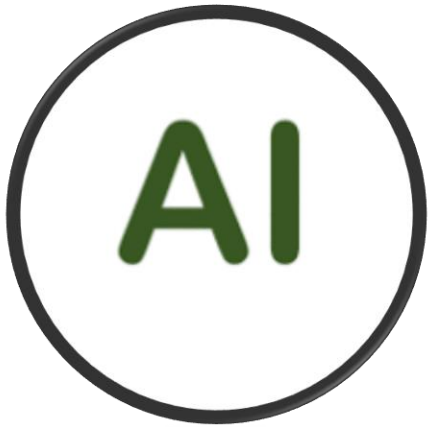
Before AIO

HCMUE

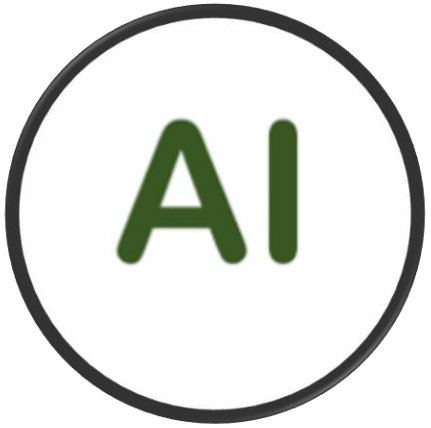
March 2021

TTTH
Khoa Học
Tự Nhiên

July 2021



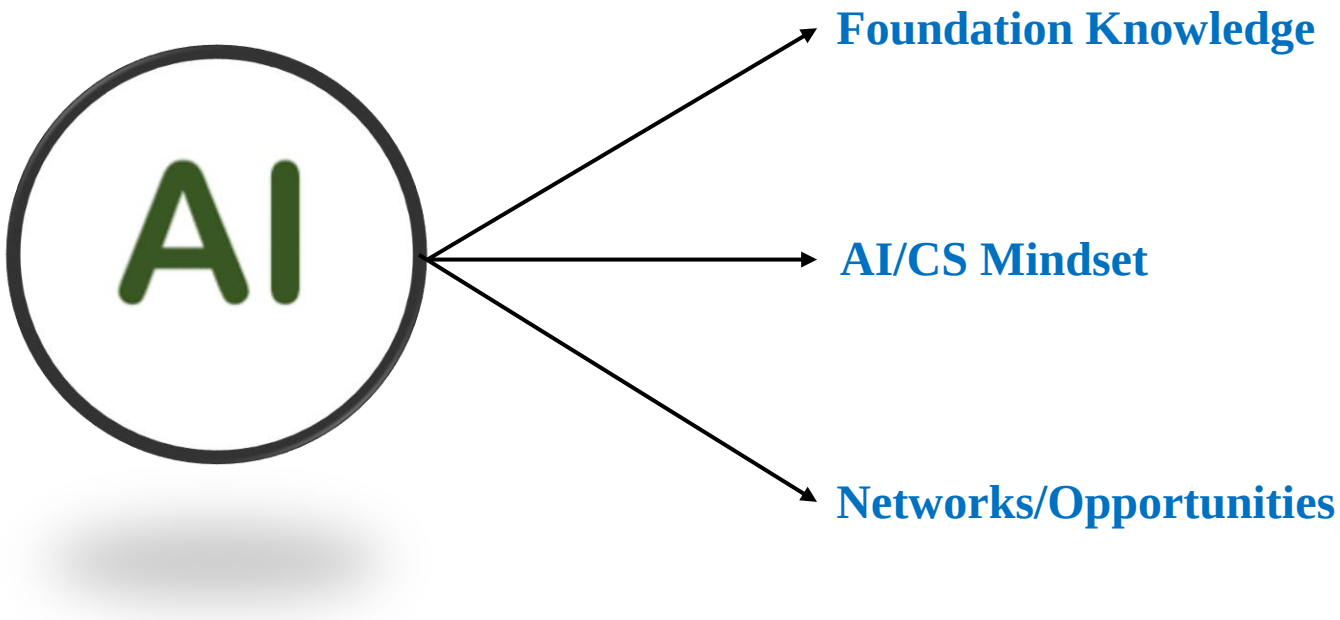
During AIO



End Course Date (July 2022)

- **Natural Language Processing**
- **Computer Vision** — **April 2022** → FPT
- **Data Science (Tabular Data)**

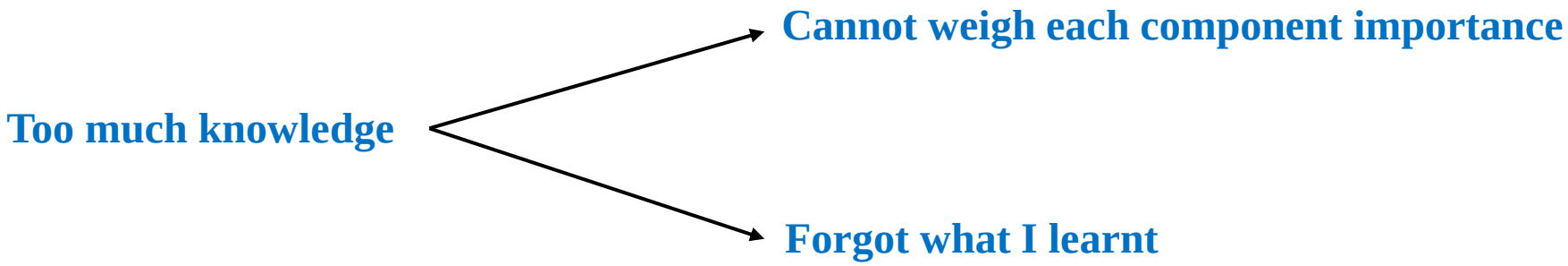
What I actually learnt – Core Values



Suggestions:

- Active learning is the most important
- Having friends/partners/colleagues for keeping motivation by discussing, working,…
- While AIO is well-designed for top-down learning (from application to foundation), it is necessary for self-studying with bottom-up approach.

Reverse side

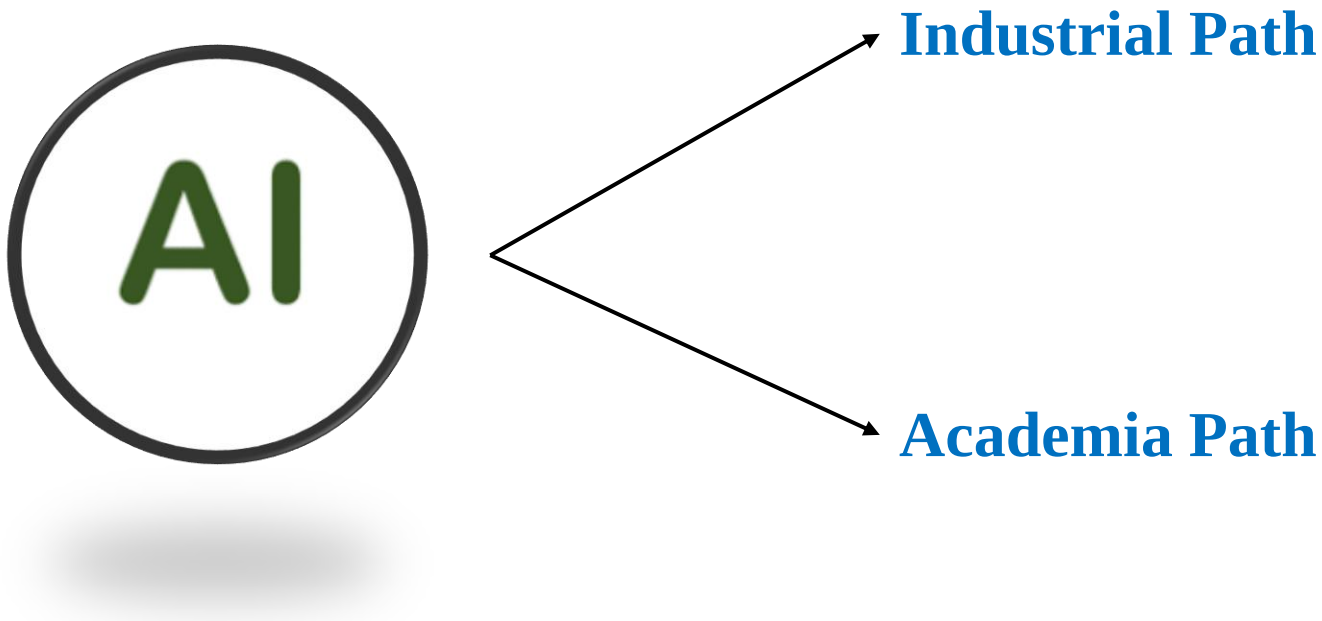


Everyone can study AIO, but not everyone knows what to study.

Suggestions:

- Early identifying what you want (Set specific goals after AIO).
- Having a mentor for study and career advice.
- Foundation knowledge of AI is always more important than extra classes.

After AIO



Suggestions:

- For career shift, building evidences such as achievements, domain knowledge, projects and mindset is necessary for job seeking or postgraduate pursuing.
- Preparing coding, math and interview skills.
- Maintaining networks/connections for further career path.

Mentorship/Opportunities

- Support study & career advice.
- Support academia mindset with related question (research assumption, manuscript writing,…)
- Refine CV/Cover Letter for applying postgraduate program.
- Research together towards publications/papers.
- International Internship/RA opportunities
- **Research area**: Computer Vision, Bioinformatics, Medical Image Analysis, Deep Learning,…

Looking for AIO 2023 Research Members

Requirement:

- ❖ Self-motivated and independent research members.
- ❖ Active and curious research members.
- ❖ Pursuing the long-term goal towards AI in medical field.
- ❖ Good technical skill (implement and debug) is a big plus
- ❖ No need prior research experience.

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Benefit:

- ❖ Be trained to equip all core research mindsets and skills.
- ❖ Boosting research profile and achievements (especially for higher education)
- ❖ GPU supported (more than one AIVIETNAM 24GB, one AIMI 24GB, Project extra*)
- ❖ Publication fee partially or fully supported (depends on impact of venue)
- ❖ Letter of Recommendation; Reference for MSc, PhD position if needed.

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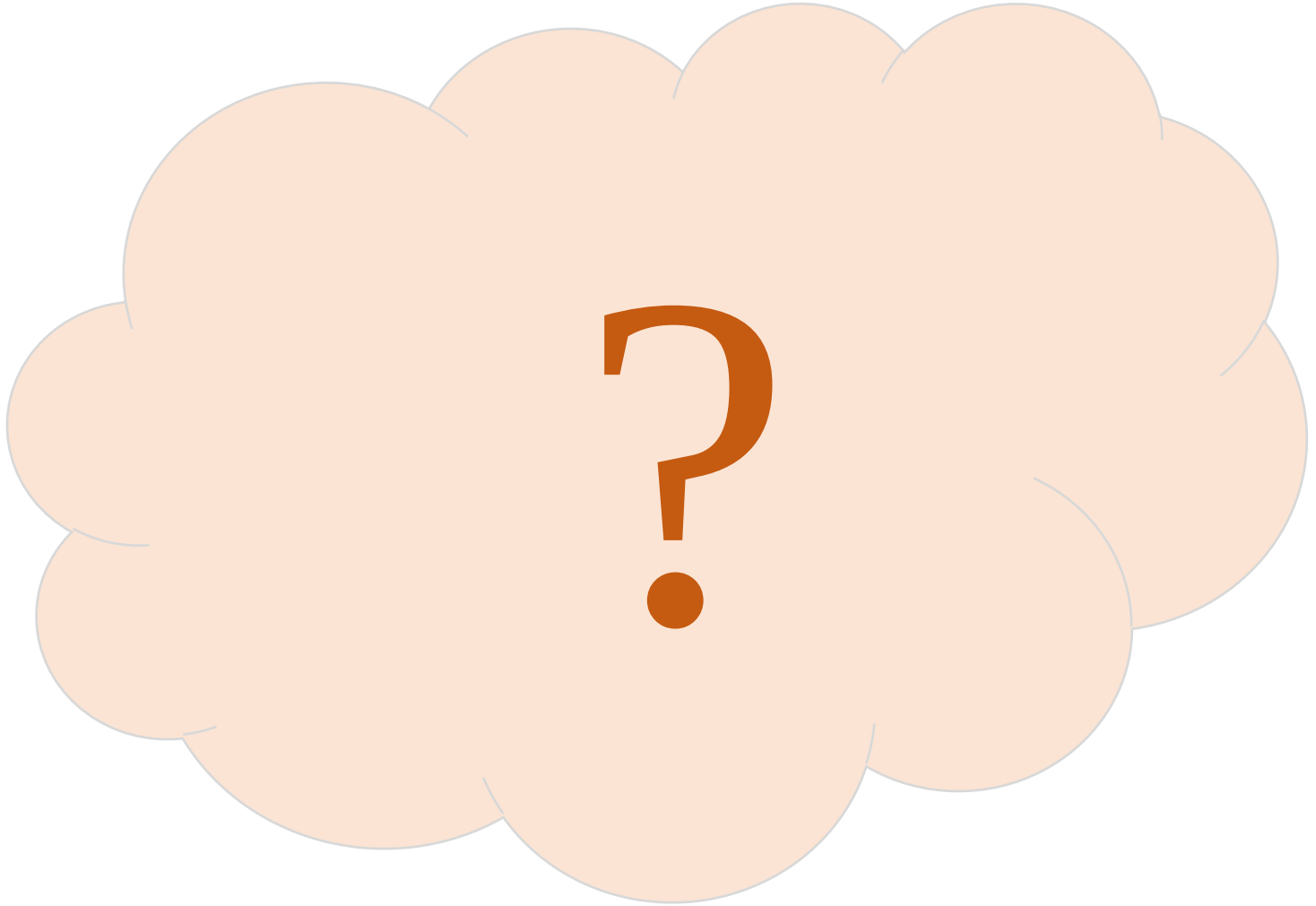
Questions




Thank you!