Yu Tian:

1. Stipend and bank account
2. US VISA
3. Research project: New techniques about 3D plant phenotyping

Ch1: Introduction

CH2: Literature review

*Akhtar M S, Zafar Z, Nawaz R, et al. Unlocking plant secrets: A systematic review of 3D imaging in plant phenotyping techniques[J]. Computers and Electronics in Agriculture, 2024, 222: 109033. https://doi.org/10.1016/j.compag.2024.109033*

CH3: RGB-D 3D reconstruction

*Zhao, G. P., W. T. Cai, Z. W. Wang, H. Wu, Y. P. Peng, and L. L. Cheng. 2022. "Phenotypic Parameters Estimation of Plants Using Deep Learning-Based 3-D Reconstruction From Single RGB Image." Ieee Geoscience and Remote Sensing Letters 19. doi: 10.1109/lgrs.2022.3198850.*

Ch4: Segmentation: weakly- or self-supervised deep learning

CH5: Growth tracking

*Daviet, Benoit, Romain Fernandez, Llorenç Cabrera-Bosquet, Christophe Pradal, and ChristianJ Plant Methods Fournier. 2022. "PhenoTrack3D: an automatic high-throughput phenotyping pipeline to track maize organs over time." 18 (1):130.*

*Schunck, David, Federico Magistri, Radu Alexandru Rosu, André Cornelißen, Nived Chebrolu, Stefan Paulus, Jens Léon, Sven Behnke, Cyrill Stachniss, Heiner Kuhlmann, and Lasse Klingbeil. 2021. "Pheno4D: A spatio-temporal dataset of maize and tomato plant point clouds for phenotyping and advanced plant analysis." PLOS ONE 16 (8):e0256340. doi: 10.1371/journal.pone.0256340.*

*Ch6: Variation pattern modeling*

DETONATE: Nonlinear Dynamic Evolution Modeling of Time-dependent 3-dimensional Point Cloud Profiles

Ch7: Conclusion and future work

1. Committee member, Comprehensive exam, progress report

Jan

Segmentation:

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Tracking:

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2. Daviet B, Fernandez R, Cabrera-Bosquet L, Pradal C, Fournier CJPM. PhenoTrack3D: an automatic high-throughput phenotyping pipeline to track maize organs over time. 2022;18(1):130.
3. Yasrab R, Zhang J, Smyth P, Pound MPJRS. Predicting plant growth from time-series data using deep learning. 2021;13(3):331.
4. Rehman TU, Zhang L, Wang L, Ma D, Maki H, Sánchez-Gallego JA, et al. Automated leaf movement tracking in time-lapse imaging for plant phenotyping. Computers and Electronics in Agriculture. 2020;175:105623.
5. Apelt F, Breuer D, Nikoloski Z, Stitt M, Kragler F. Phytotyping4D: a light‐field imaging system for non‐invasive and accurate monitoring of spatio‐temporal plant growth. The Plant Journal. 2015;82(4):693-706.
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