



ABBY-Net Research Workshop: Calgary, August 9, 2019

The annual E³-systems research workshop held in Calgary on August 9th, 2019 was a great success – we had 13 research presentations, of which most of them were given by the students carrying out these collaborative E³-systems projects. Furthermore, we had many engaged guests participating in workshop bringing us to a total headcount over 30 participants and providing great positive feedback!

The workshop program with individual research project updates can be found here: (here should go the link to the program as a pdf)

Below is a brief illustration of the workshop:

a) Introductions:

- Welcome:
 - Greg McDermid opened the workshop to all the guests and our PIs and students.





- Opening Remarks by UofC VP Research (Andre Buret) and International Office (Cheryl Dueck):
 - Both offices reaffirmed their support for ABBY-Net and a forthcoming IRTG proposal.

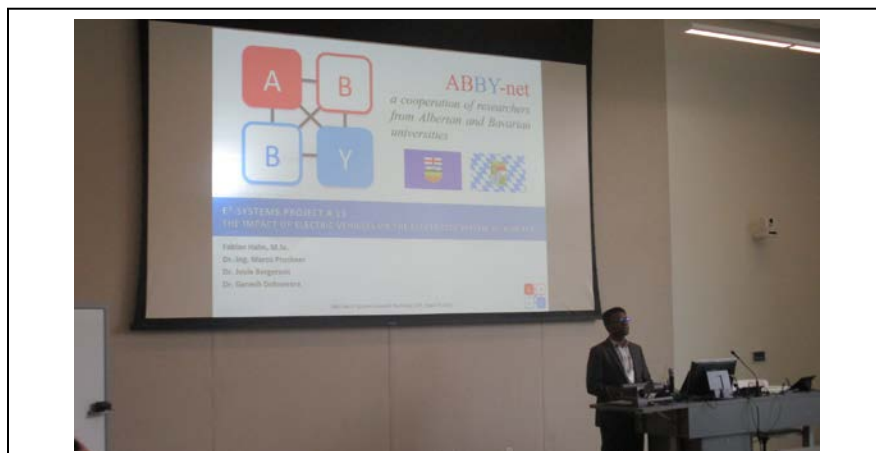


b) Presentations: 1 Intro Talk & 13 Research Projects

- Introduction to ABBY-Net Vision and History by Ralf Ludwig

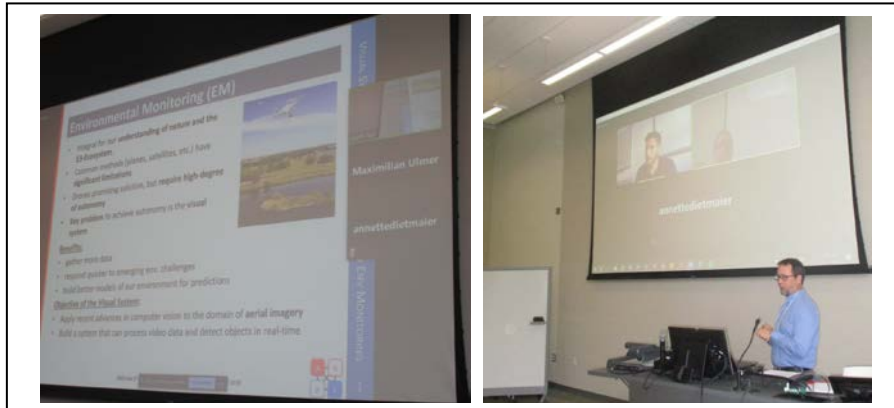


- Fabian Hahn's/Marco Pruckner's work presented by collaborator Ganesh Dolouweera: "Project 13a: The Impact of Electric Vehicles on the Energy System of Alberta"





- Maximilian Ulmers/Klaus Diepold's work presented via zoom: "Project 9: Decision Process of Autonomous Drones for Environmental Monitoring"



- Annette Dietmaier's/Greg McDerimid's work presented via zoom: "Project 18: Comparing Laser Scanning and photogrammetry to detect openings in the boreal forest in Alberta"



- Matt Tierney's/Joule Bergerson's work presented in person: "Project 24: Interactions of Renewable Energy Technologies with Traditional Fossil-Fueled Grids"





- Michael Fromm's/Matthias Schubert's work presented by Matthias: "Project 1a: Deep/Machine learning to support restoration assessment -seedling detection".



- Philipp Bauers/Ralf Ludwigs' work presented by Philipp: "Project 4: Change in heating and cooling demand due to climate change in Alberta and Bavaria and its influence on local energy systems".



- Katharina Wendel's/Ralf Ludwigs' work presented by Ralf: "Project 11: Assessing the impacts of land use and climate change on nitrate exports from a sub-basin of the Oldman R."

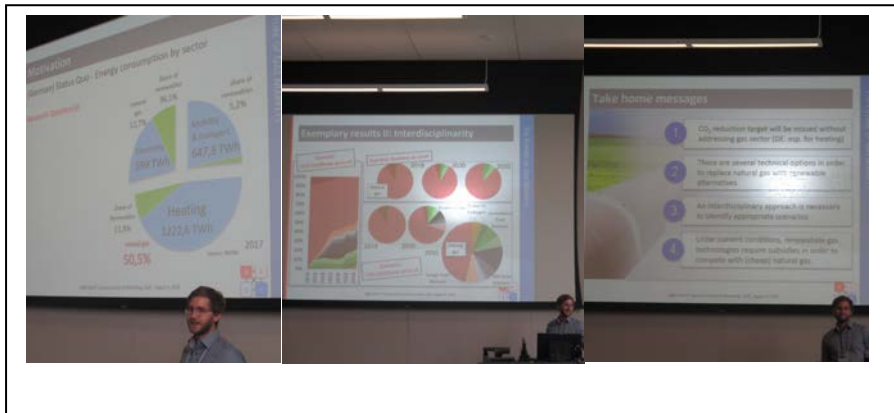




- Amarachi Kalu's/Ralf Ludwig's work presented by Amarachi: "Project 3a: Regional assessment of opportunities and challenges of alternative energy technologies and their environmental impacts".



- Sebastian Kolb's/Juergen Karl's work presented by collaborator Thomas Plankenbuehler: "Project 3b/c: The Future of Gas Markets: Conventional vs. Renewable Gases".



- Jakaria Rabbi's/Nilanjan Ray's work presented by Jakaria via zoom: "Project 20: Automated Monitoring of Well Sites Using Satellite Imagery".





- Matthias Schubert's/Guillermo Castilla's work presented by Matthias: "Project 1c: The Edmonton Tree Project".



- Muhammad Saad Arshad's/Pierre Mertiny's work presented by Pierre: "Project 17: Economics and Technology Acceptance of Distributed Energy Storage Systems Using the Example of Hybridized Flywheel Energy Storage".



- Sven Anders Research example of potential future ABBY-Net Project: "Landowner Acceptance of Wind Farm Development in Alberta".





c) Workshop Discussions & Feedback from Guest

- Overall, the workshop showcased a large numbers of student training instances that have happened over the past two years. Several Masters projects have been completed and collaborative publications are on their way. Positive sentiment about the accomplishments to date was expressed and several comments made for potential future developments:



- **Federal vs. Regional Tools:**
 - To consider branching out to federal initiatives and incorporate into regional work.
- **Humanities Angle missing in triangle**
 - To consider including cultural perspectives as co-driver in changing trends in energy transitions.
- **Include Focus on Game-changing technologies**
 - To consider increased focus on game-changing technologies to come; i.e. what jumpstarting technologies have occurred and which ones may occur soon next.
- **More socio-economics PIs/collaborators sought**
 - The corners for socio-economics in our E³-triangle could be strengthened on both sides of the Atlantic.

