

Karlsruhe Institute of Technology

Institute for Automation and Applied Informatics (IAI) Karlsruhe Institute of Technology (KIT) Hossein.Shirali@kit.edu

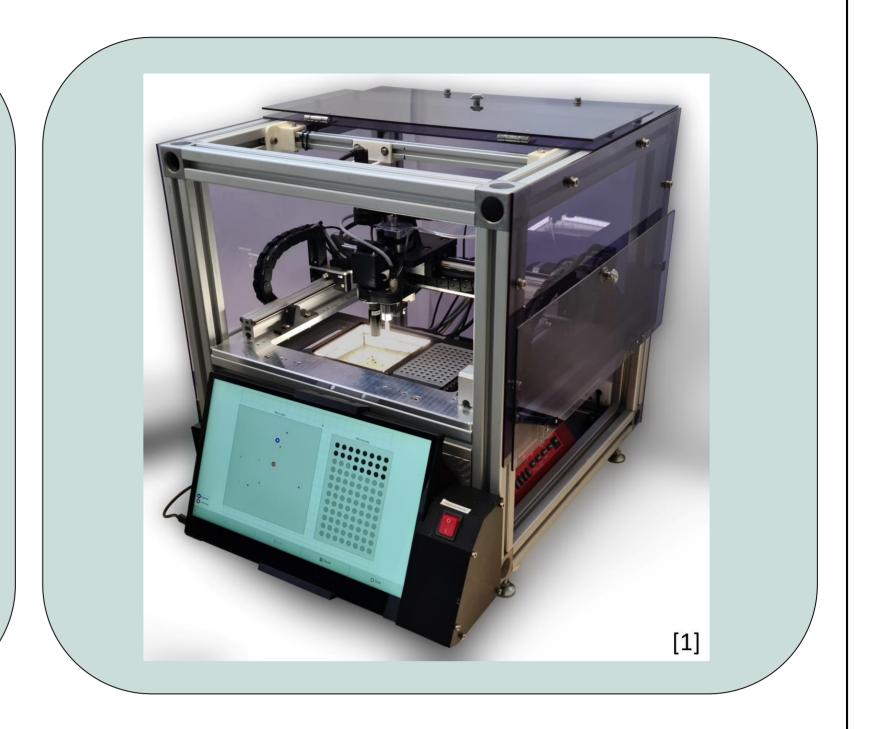
Advancing Biodiversity Research with AI-Driven Automation

Hossein Shirali & Lorenz Wührl & Nathalie Klug | Rudolf Meier | Christian Pylatiuk

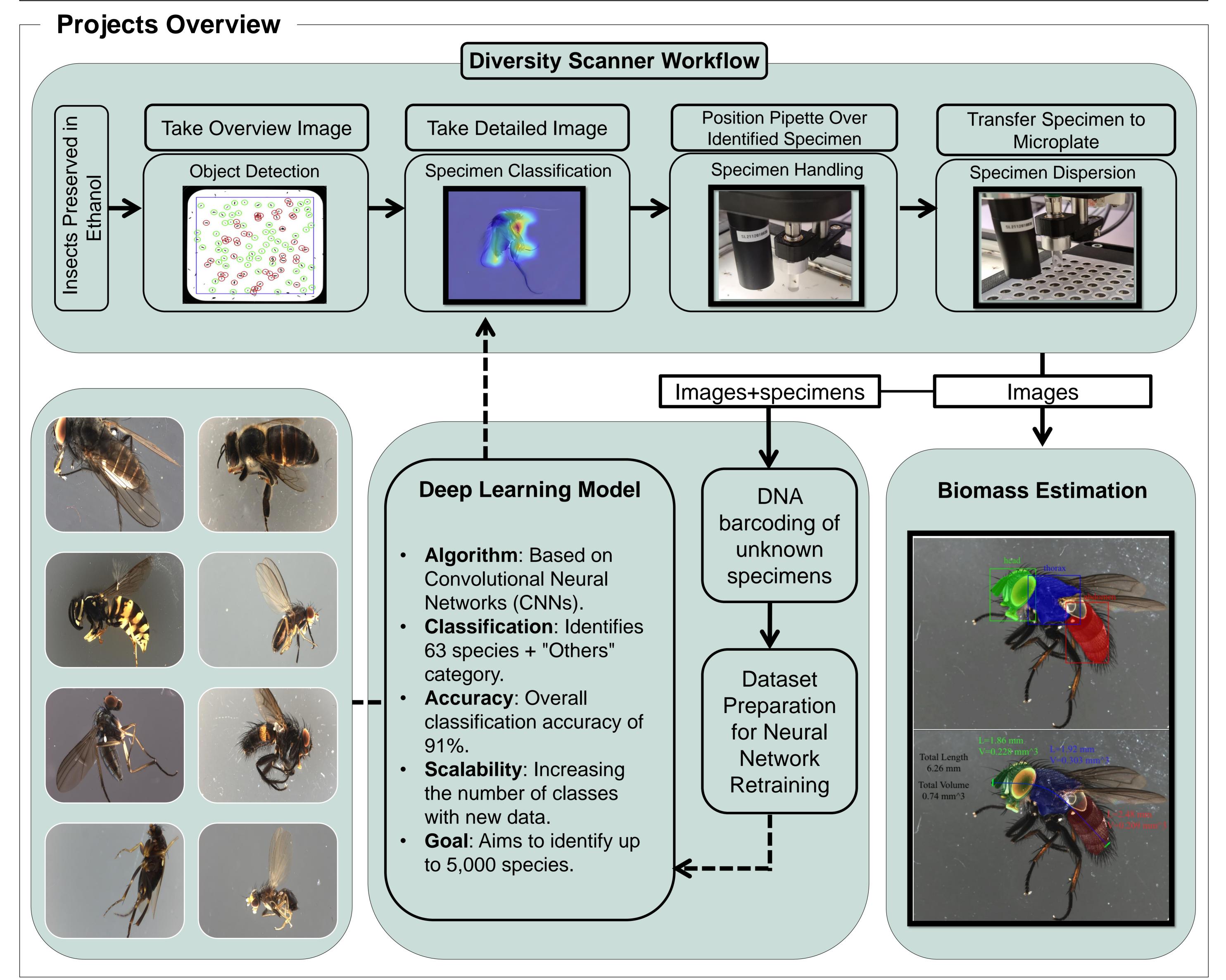
Introduction

DiversityScanner 4K

- Enhanced Speed and Efficiency: Utilizing robotics and AI, the DiversityScanner 4K rapidly evaluates insect trap samples.
- **Precision Classification:** High-resolution imaging and deep learning techniques ensure accurate classification of specimens at the family and species levels.



- **Robotic Automation:** Streamlined processes with robotic arms and an automated syringe pump for sorting specimens into a 96-well microplate.
- **Robust Data Collection:** Generates a comprehensive dataset for machine learning, with the goal of identifying 5,000 species without sequencing.



Karlsruhe Institute of Technology: Hossein Shirali – hossein.shirali@kit.edu Christian Pylatiuk – pylatiuk@kit.edu Museum für Naturkunde, Berlin: Rudolf Meier – rudolf.meier@mfn.berlin

References

1. Wuehrl et al. (2022). DiversityScanner: Robotic handling of small invertebrates with machine learning methods. MER, 22, 1626-1638. https://doi.org/10.1111/1755-0998.13567



KIT – The Research University in the Helmholtz Association

