



**UNSW**  
SYDNEY



## Agricultural and Viticultural Image Processing

**Algorithms to improve efficiency in agtech using high-detail image processing systems to estimate yield, detect stress levels in plants and manage land using commercial, off-the-shelf hardware and consumer devices. These tools give large-scale visibility that improve productivity while saving time and money.**

### Competitive advantage

- Simple to use image processing systems that give large-scale visibility with much greater detail than aerial imaging
- Uses highly affordable and available image capture systems
- Robust algorithms backed by ground-truth data

### Impact

- The development of more robust algorithms for processing images from tree-size to microscopic level will reduce labour requirements in vineyards and orchards, improve the reliability of image data management and provide greater insight into yield estimation processes.

### Successful applications

- There have been nine finished deployments and evaluations of the technology, with three in process.
- Refined the data collection practices of Pernod Ricard in the Marlborough region of New Zealand.
- Apple flower and canopy density mapped by SwarmFarm using algorithms
- QR code based image processing tools simplifying data collection to identify leaf and trunk disease by Plant and Food Research New Zealand
- Algorithms applied by Tasmanian Institute of Agriculture for flower counting and early-stage yield estimation
- Algorithms being used by researchers in the Netherlands for stomata detection
- Komatsu Japan is implementing patented earth-moving algorithms

### Capabilities and facilities

- Local and remote computing servers configured for large-scale image processing.
- Field sites for evaluating mobile sensing systems.

### Our partners

- SwarmFarm
- Bosch
- Adama
- Horticulture Innovation Australia Limited
- Plant and Food Research New Zealand

### More Information

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