ALGM: An Algorithm for Leaf Growth Measurement Using Region Growing Method

S. Chuai-Aree[1], **M. Srisombat**[2], **M. Sirinupong**[2], **S. Suanphairoch**[2], **S. Siripant**[3], **W. Jäger**[4], **and H. G. Bock**[4]

Abstract: Leaves play an important role for plant growth. Leaf area (LA) indicates the biomass of plant growth. In this article, we propose an algorithm for the automatic leaf area measurement grown in hydroponic solution. The hydroponic plants were grown from the seeds after 7 days planting and captured with webcam for every 10 minutes from the top view for 30 days. The region growing method (RGM) was applied to segment all leaf areas in the image domain. The leaf growth is automatically analyzed and visualized its growth curve. The application can be used to experiment with plant growth in different situations and nutrient types. In this experiment, the *Brassica camprestris* L. was used as a case study.

[1] Department of Mathematics and Computer Science
Faculty of Science and Technology, Prince of Songkla University
181 Charoenpradit Road, Rusamilair District, Muang, Pattani 94000, Thailand
csomporn@bunga.pn.psu.ac.th

[2] Department of Technology and Industries
Faculty of Science and Technology, Prince of Songkla University
181 Charoenpradit Road, Rusamilair District, Muang, Pattani 94000, Thailand
g5020320302@mor-or.pn.psu.ac.th, {smanoon, ssuchari}@bunga.pn.psu.ac.th

[3] Advanced Virtual and Intelligent Computing (AVIC)
Faculty of Science, Chulalongkorn University
Phayathai Road, Phatumwan, Bangkok 13300, Thailand
ssuchada@chula.ac.th

[4] Interdisciplinary Center for Scientific Computing, University of Heidelberg
Im Neuenheimer Feld 368, 69120 Heidelberg, Germany
{jaeger, bock}@iwr.uni-heidelberg.de