COMPETITIVE RESEARCH PROGRAMME (CRP)

ANNEX C1 – PROJECT OBJECTIVES & DELIVERABLES

CRP Proposal ID	CRP20-2017-0006
CRP Programme Title	CogniVision – Energy-autonomous always-on cognitive and attentive cameras for distributed real-time vision with milliwatt power consumption
Salutation of Lead PI	Associate Professor
Name of Lead PI	Massimo Alioto
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Host Institution	National University of Singapore
Faculty & Department	Faculty of Engineering, Department of Electrical and Computer Engineering

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Please list the project objectives and deliverables, to check for success by mid-term review and project completion review.

Please add in more rows if required

Review Time Frame:	No.	Objectives	Mid-term and final deliverables as checks for success
Mid Term	1	Chip demonstration of low-level scene analysis building blocks	Integrated circuit performing feature extraction at 50 μW power (or lower) at VGA resolution, 5fps frame rate
			Saliency assessment engine with 80 μW power at VGA resolution, 5pfs frame rate
			Imager with 100 μW power (VGA, 30 fps) at activity rate of average NeoVision2 benchmark

Review Time Frame:	No.	Objectives	Mid-term and final deliverables as checks for success
	2	Deep learning model with reduced complexity	1,000X reduced size with <2% accuracy degradation in object and human detection, compared to deep learning network with best-in-class accuracy (e.g., 63.7% according to MobilNet baseline, based on ImageNet benchmark)
Project Completion	3	System on chip demonstration of a complete cognitive camera	Integrated circuit performing image sensing and scene analysis with average power consumption in the mW range, including neural acceleration with maximum accuracy no lower than the best-in-class detection/classification algorithms minus 5-10% (indoor, 500-lux lighting, max. 20 people)