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FAST POWER LINE DETECTION AND LOCALIZATION USING STEERABLE FILTER FOR ACTIVE UAV GUIDANCE

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Abstract. In this paper we present a fast power line detection and localisation algorithm as well as propose a high-level guidance architecture for active vision-based Unmanned Aerial Vehicle (UAV) guidance. The detection stage is based on steerable filters for edge ridge detection, followed by a line fitting algorithm to refine candidate power lines in images. The guidance architecture assumes an UAV with an onboard Gimbal camera. We first control the position of the Gimbal such that the power line is in the field of view of the camera. Then its pose is used to generate the appropriate control commands such that the aircraft moves and flies above the lines. We present initial experimental results for the detection stage which shows that the proposed algorithm outperforms two state-of-the-art line detection algorithms for power line detection from aerial imagery.

[Conference Paper](#) (PDF, 1394 KB)

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