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Experience with VoxNet: a rapidly-deployable acoustic monitoring system for bio-acoustic studies

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Terrestrial bioacoustic census is a difficult problem because of propagation characteristics, obstructions, the diversity of bioacoustic sources, and the impact of noise. To address this problem we have developed VoxNet, a complete hardware and software platform for distributed acoustic monitoring applications. Each VoxNet node is a portable, self-contained processor with a small four-channel acoustic array. Using a distributed set of VoxNet nodes, a forested habitat can be monitored and the behavior of animals can be recorded and analyzed acoustically. In this work we present our experiences applying VoxNet to bioacoustic census. This work is based on data collected using the system during a deployment in Chiapas, Mexico at the Chajul Biological Field Station. The Chajul station is located in a region of dense rain forest and is home to Mexico's most diverse ecosystem. Using VoxNet in this harsh environment, we obtained census estimates based on observation of bird calls.