Getting Started with Android

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Overview

- JNI
- Android Components
- Intents
- Permissions
- What you need
- Demo
JNI

- Android uses Java
- Can also run C code using Java Native Interface
- Basic Steps:
  - Declare a function in Java as native
  - Implement C function with a long name
  - Create Android.mk
  - Run ndk-build
- For more details on how to do this, try looking at
App Components

- **Activities**: A single screen with a UI
- **Services**: Performs long-running operations in the background
- **Content Providers**: Manages shared app data
- **Broadcast Receivers**: Responds to system-wide announcements

*Accessed through ContentResolver with query(*)
Intents

- Used to launch Activities, Services, and Broadcast Receivers

- Activities and Services: Defines action to perform and can return the result of that action
  - Activity: `startActivity()`, `startActivityForResult()`
  - Service: `startService()`, `bindService()`

- Broadcast Receivers: Defines announcement being sent
  - `sendBroadcast()`, `sendOrderedBroadcast()`, `sendStickyBroadcast()`
Manifest File

- **AndroidManifest.xml** in root of app project directory
- Must declare all your components
  - `<activity>`, `<service>`, `<receiver>`, `<provider>`
  - Can specify which intents that component can respond to
- Identifies permissions (SMS, contacts, camera, Bluetooth, etc)
- Requirements for app (hardware, min sdk version, etc)
What You Should Have

- Android device and connector
- An IDE (preferably Eclipse)
- Android NDK
- The OpenCV library for Android
Today’s Demo

- Display video feed from camera
- Find edges
- Find features
- Threshold based on user input