Faculty of Engineering
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Ubiquitous CAE System on Mobile Devices

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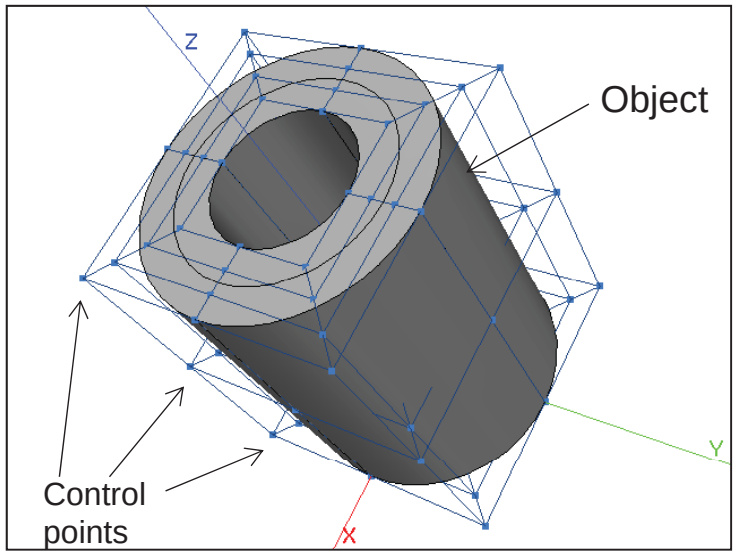
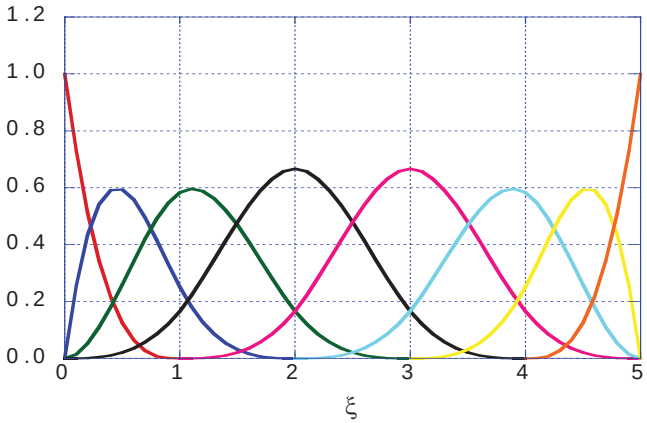


Isogeometric Analysis



NURBS Basis Functions

Content:

3D printers, which can make 3D solid objects, have become available to ordinary consumers. They will make it possible for everyone to be a manufacturer. In contrast to the mass production era, design is the most important feature of a product nowadays. Personal manufacturing inevitably needs personal CAE systems that support manufacturing : “personal” means “easy to use” and “ available anytime, anywhere”.

We have focused on mobile devices, such as smart phones and tablets based on Google’s Android OS or Apple’s iOS, as a base platform for personal CAE systems. Mobile devices have been rapidly gaining both popularity and enough performance to be used for our CAE system.

Isogeometric analysis (IGA) is a kind of finite element method. As it uses NURBS functions, de facto standard functions for representing 3D object in the CAD field, as basis functions for analysis, mesh generation, most inefficient and time-consuming process in FEM, is not necessary. We are developing an IGA-based ubiquitous CAE system for mobile devices. Our CAE system includes all processes: pre-process, main(solver)-process and post process. We are also developing new efficient human interface for mobile devices including the use of camera and/or sensors in mobile devices.

Keywords : CAE, Android OS, Isogeometric Analysis

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