he Virginia Commonwealth University School of Engineering’s growth strategy over the next five years includes unprecedented faculty recruitment and retention efforts. Why? So that our students get the very best instruction and the most meaningful real-world experience possible. It is with this dynamic future in mind that we applaud our talented and visionary faculty where they make it real for our students every day.

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- Artificial hearts and ventilators  
- Motor development  
- Deaf to “see” acoustically, facilitating perceptual movement control

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- Cellular contractile force measurements

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- High noise speech communication system  
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- Speech recognition for distorted speech and noisy environments  
- Design of Assistive Technology

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- Hand prosthetics  
- Human haptic perception

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- Structural stability of fixation constructs  
- Articular cartilage: normal function, reparative techniques

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- Nanomaterials for oral biofilm prevention

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- Development of efficient and cost-effective processes using continuous synthesis and flow chemistry

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- Process development of new and existing active pharmaceutical ingredients  
- Development of efficient and cost-effective processes using continuous synthesis and flow chemistry

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- Nanoparticles and smart medicine

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- Antimicrobial and cytocompatible coatings

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- Drug delivery for glaucoma
- Brain cancer therapy

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- Data mining
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- Cybersecurity, network security, and privacy and trust
- Mobile (3G/4G) systems

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- Approximation algorithm, combinatorial optimization

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- Systems biology
- Wireless networks
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- Fuzzy logic modeling
- SVM algorithms for large datasets

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- Intrinsic disorder in proteins
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- Information retrieval

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- Microwave hyperthermia and ablation
- Computational electromagnetics

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- Sensors and actuators
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- Semipolar and nonpolar III-nitride epitaxial structures on silicon and sapphire substrates for light emitters
- ZnO-based heterostructures and transparent conductive oxides (TCOs) for electronic and optoelectronic devices and plasmonics

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- Nanowire-based room temperature infrared detectors

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- Nitride semiconductor heterostructures
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- Emerging memory and storage technologies
- Embedded systems

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- Ultra-incompressible superhard materials
- Thin film deposition and characterization
- Superhydrophobic materials

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- Sustainable batteries
- Nanomanufacturing
- Self-powering of implantable/wearable systems

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Research Topics:
- Response dynamics and vibrations of offshore drilling and production systems
- Deepwater marine riser systems and the various nonlinear effects
- Simulation and control of sophisticated, high-capacity tensioning systems

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- Nano-biosensors for disease diagnostics

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Research Topics:
- Surface science and surface engineering
- Transport and self-assembly of colloidal nanoparticles
- Printed functional devices