



# VCU

VIRGINIA COMMONWEALTH UNIVERSITY

## “Automated Quantitative Analysis of Microcirculation”

VCU 09-26

### Applications

- Accurate segmentation and quantification of microvascular images
- Screening variation in microcirculation
- Monitoring changes in microcirculation
- Early detection of diabetes, sepsis, sickle cell anemia

### Advantages

- Cost-effective
- Accurate
- Fully automated
- Real-time analysis

### Inventors

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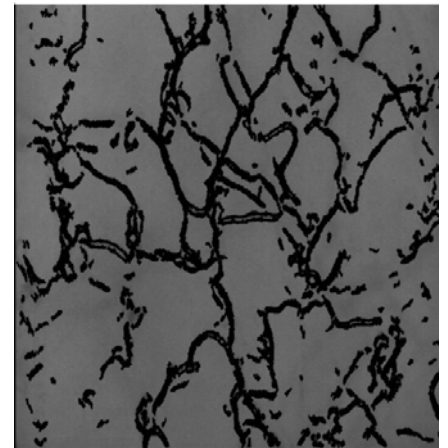
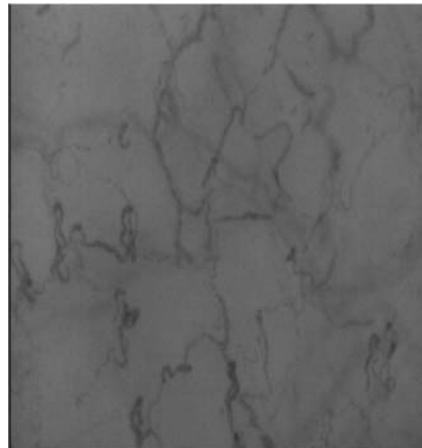
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### Market Need

Quantification of variations in microcirculation are important for diagnostics and treatment decisions. Current technologies lack accuracy and require human interaction. Hence, there is a need for a tool that allows this process to be fully automated, efficient and precise.

### Technology Summary

This is a novel technique that provides for automatic and real-time analysis of microcirculation images and videos, meanwhile allowing for user intervention. In addition to detecting small blood vessels, the system provides functional measurements of the microcirculation such as Functional Capillary Density (FCD). This technique could be used for screening variation in microcirculation during resuscitation for hemorrhagic shock to decide when to stop/start resuscitation and prevent over- and under- resuscitation; monitoring the changes in microcirculation in systemic diseases and local tissue assessment; and early detection and monitoring of diseases such as diabetes, sepsis, and sickle cell anemia.



### Technology Status

U.S. Patent pending: 13/259,414.

Tested on emergency medicine datasets.

This technology is available for licensing to industry for further development and commercialization.