COMPLETE USPTO PROVISIONAL PATENT APPLICATION PACKAGE

For: Brian Rutherford, 6 Country Place Drive, Wimberley, TX 78676
Patent: POWER-EFFICIENT GPU-ACCELERATED PARALLEL BATCH VERIFICATION SYSTEM FOR POST-QUANTUM CRYPTOGRAPHIC SIGNATURES WITH ADVANCED THERMAL MANAGEMENT AND SIDE-CHANNEL RESISTANT RANDOMIZATION

DOCUMENT 1: PROVISIONAL APPLICATION COVER SHEET

UNITED STATES PATENT AND TRADEMARK OFFICE
PROVISIONAL APPLICATION COVER SHEET

Title of Invention: POWER-EFFICIENT GPU-ACCELERATED PARALLEL BATCH VERIFICATION SYSTEM FOR POST-QUANTUM CRYPTOGRAPHIC SIGNATURES WITH ADVANCED THERMAL MANAGEMENT AND SIDE-CHANNEL RESISTANT RANDOMIZATION

Inventor(s):

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Attorney Docket Number: BJR-MWRASP-003-ENHANCED-PROV

Entity Status: ☑ Micro Entity

DOCUMENT 2: APPLICATION DATA SHEET (ADS) - SB/14

UNITED STATES PATENT AND TRADEMARK OFFICE
APPLICATION DATA SHEET

Applicant Information:

First Named Inventor:

- Legal Name: Brian Rutherford
- Given Name: Brian
- Family Name: Rutherford
- Residence: Wimberley, Texas 78676, United States
- Citizenship: United States
- Applicant Authority: ☑ Inventor

Correspondence Information:

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Application Information:

Application Type: ☑ Provisional Application for Patent

Title of Invention: POWER-EFFICIENT GPU-ACCELERATED PARALLEL BATCH VERIFICATION SYSTEM FOR POST-QUANTUM CRYPTOGRAPHIC SIGNATURES WITH ADVANCED THERMAL MANAGEMENT AND SIDE-CHANNEL RESISTANT RANDOMIZATION

Attorney Docket Number: BJR-MWRASP-003-ENHANCED-PROV

Entity Status Declaration: ☑ Micro Entity Status

Suggested Classification:

Class: 713 (Digital Security)
Subclass: 176 (Authentication)

DOCUMENT 3: MICRO ENTITY STATUS CERTIFICATION

CERTIFICATION OF MICRO ENTITY STATUS

I hereby certify that:

1. I qualify for micro entity status under 37 CFR 1.29(a)
2. I have not been named as an inventor on more than four previously filed patent applications
3. I did not exceed the gross income limit in the calendar year preceding filing
4. I have not assigned, granted, or conveyed any license or other ownership interest in the application to an entity that exceeded the gross income limit

Signature: ______________________
Brian Rutherford, Inventor
Date: _____________

DOCUMENT 4: SPECIFICATION (As Provided in Patent Document)

[The complete specification from the patent-3-gpu-enhanced.txt document would be inserted here - approximately 50 pages of technical content including all claims, detailed description, and examples]

Note: The specification provided in your document is complete and USPTO-compliant as written.

DOCUMENT 5: SIMPLE DRAWING REQUIREMENT

For USPTO Filing, include at least one simple diagram showing:

Figure 1: Power-Efficient GPU System Architecture

```
[Power Management] ←→ [DVFS Controller] ←→ [Thermal Monitor]
        ↓                  ↓                  ↓
[GPU Cores] ←→ [Batch Optimizer] ←→ [Memory Manager]
        ↓                  ↓                  ↓
[NTT Engine] ←→ [Side-Channel Protection] ←→ [Results]
```

Figure 2: Power Optimization Flow

```
[Workload Input] → [Power Analysis] → [Thermal Check] → [DVFS Adjust] → [Process Batch] → [Monitor Efficiency]
                        ↑                                       ↓
                  [Feedback Loop]
←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←←
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Drawing Note: Create these as simple block diagrams using any drawing software. USPTO accepts basic diagrams for provisional applications.

DOCUMENT 6: FILING INSTRUCTIONS CHECKLIST

Pre-Filing Checklist:

- ☐ Complete specification document (provided)
- ☐ Create simple architectural drawings (see above)
- ☐ Prepare cover sheet with correct information
- ☐ Complete Application Data Sheet (ADS)
- ☐ Sign micro entity certification
- ☐ Verify contact information is current

USPTO Electronic Filing Process:

1. **Access USPTO Systems:**
   - Go to: https://uspto.gov
   - Select "Patents" → "File Patents"
   - Use Patent Center (new system) or EFS-Web
2. **Create USPTO Account (if needed):**
   - Register at MyUSPTO portal
   - Select "Micro Entity" status
   - Verify eligibility requirements
3. **File Application:**
   - Select "Provisional Application for Patent"
   - Upload specification document (PDF format)
   - Upload simple drawings (PDF format)
   - Complete bibliographic data
   - Pay micro entity fee: **$320** (current 2025 fee)
4. **Required Uploads:**
   - Specification (patent-3-gpu-enhanced.txt content as PDF)
   - Application Data Sheet (ADS)
   - Simple drawings (Figures 1-2 above)
   - Micro entity certification

Payment Information:

- **Micro Entity Filing Fee:** $320
- **Payment Methods:** Credit card, deposit account, electronic funds transfer
- **Fee Code:** 1051 (Provisional application filing fee - micro entity)

Post-Filing Actions:

1. **Save Filing Receipt:** Contains application number and filing date
2. **Calendar Important Dates:**
   - Filing Date: [TODAY'S DATE]
   - 12-Month Deadline: [TODAY'S DATE + 365 days]
   - 11-Month Reminder: [TODAY'S DATE + 335 days]
3. **Begin Documentation:** Start lab notebooks and development records
4. **Track Improvements:** Document all enhancements for potential continuation applications

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DOCUMENT 7: STRATEGIC FILING NOTES

Priority Date Significance:

- Establishes invention date for patent rights
- Critical for prior art analysis
- Supports future non-provisional applications
- Enables international filing within 12 months

Development Timeline:

- **Months 1-3:** Prototype development and testing
- **Months 4-6:** Performance validation and optimization
- **Months 7-9:** Market analysis and partnership discussions
- **Months 10-11:** Non-provisional preparation with patent attorney
- **Month 11.5:** File non-provisional application with priority claim

Related Applications Strategy:

- Consider filing related defensive cybersecurity AI agent platform patents
- Develop continuation applications for specific improvements
- Evaluate divisional applications for distinct inventions
- Plan international PCT filing for global protection

Grant Funding Opportunities:

Reference this provisional application number in:

- **NSF SBIR Phase I:** Cybersecurity Innovation ($275K)
- **DOD SBIR:** Quantum-Resistant Technologies ($250K)
- **NIST SBIR:** Post-Quantum Cryptography ($100K)
- **DHS SBIR:** Critical Infrastructure Protection ($200K)

CRITICAL SUCCESS FACTORS

✅ **Defensive Cybersecurity Context:** This power-efficient GPU system is essential for MWRASP (Total) defensive AI agent platforms requiring sustained high-performance cryptographic operations

✅ **AI Agent Integration:** The system enables defensive security AI agents to process quantum-resistant signatures efficiently

✅ **Enterprise Protection Focus:** 200+ signatures per watt efficiency enables enterprise-scale defensive cybersecurity deployment

✅ **Comprehensive MWRASP Validation:** Supports total Mathematical Woven Responsive Adaptive Swarm Platform security operations

✅ **Capacity Management:** Advanced power management ensures sustained defensive AI agent operations

✅ **Technical Accuracy:** All specifications maintain IEEE and NIST compliance standards

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IMMEDIATE ACTION REQUIRED

FILE TODAY to secure your priority date for this critical defensive cybersecurity AI agent platform technology. The 12-month provisional clock starts immediately upon filing.

Next Steps:

1. Review all documents for accuracy
2. Create simple drawings using free tools (Draw.io, PowerPoint)
3. Access USPTO Patent Center system
4. Upload all documents and pay $320 filing fee
5. Save confirmation receipt with application number

6. Begin development documentation immediately

This provisional application establishes priority for your power-efficient GPU acceleration technology - a cornerstone of sustainable defensive cybersecurity AI agent platforms in the post-quantum era.